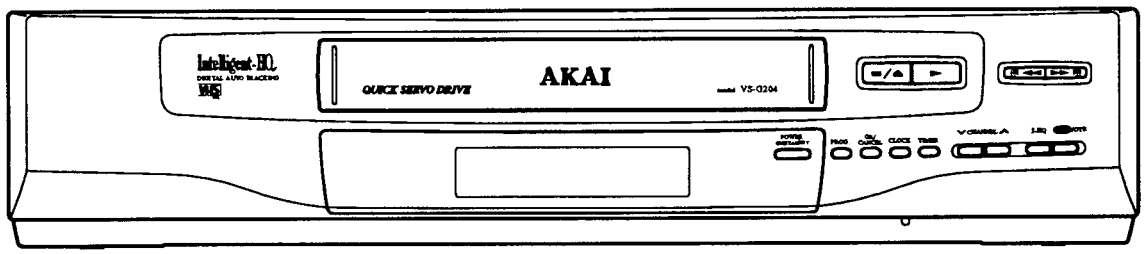
VS-G204,205
VS-G206,211

AKAI SERVICE MANUAL



MODEL VS-G204EA

HQ HIGH QUALITY VHS PAL

SHOWVIEW

VIDEOPlus+

VIDEO CASSETTE RECORDER

MODEL **VS-G204** EA/EOH/EM/ES

MODEL **VS-G205** EA/EDG/EM/EO/EOH

MODEL **VS-G206** EA

MODEL **VS-G211** EOH

MODEL **VS-G212** EOG

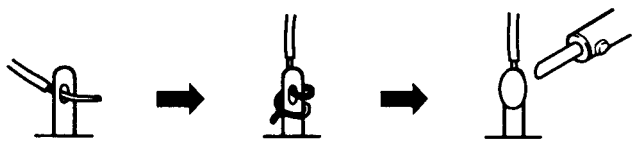
MODEL **VS-G215** EK/EO/EOH

MODEL **VS-G217** EOG

★ SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ (*) symbol are critical for safety. Replace them only with the parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with the specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts.
   Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (insulating barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing micro switches
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap the ends of the wires securely around the terminals before soldering.



6. Make sure that wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Make sure that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SAFETY CHECK AFTER SERVICING

After servicing, make measurements of leakage-current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit.
The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal input/output connectors, etc.) and the earth ground through a resistor of 1500 ohms paralleled with a 0.15 µF capacitor, under the unit's normal working conditions.
The leakage-current should be less than 0.5 mA rms AC.
The resistance measurement should be done between accessible exposed metal parts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2 M Ohms.

MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can.
Please leave them at an appropriate depot.

★ SPECIFICATIONS

Format	
EA/EK/ES/	VHS standard
EDG/EM/EO/EOG/EOH	VHS standard (PAL, MESECAM)
Video recording system	Rotary, slant azimuth two-head helical scan system
Rotary heads	2 video heads
RF input	
EA	System B, G VHF ch 0 - 5, 5A, 6 - 11 UHF ch 21 - 69
EDG	System D, K VHF ch 1 - 12, UHF ch 21 - 69 System B, G VHF ch 2 - 12, UHF ch 21 - 69 Cable ch S1' - S3', S1 - S20
EK	System I UHF ch 21 - 69
EM	System B, G (PAL, SECAM) VHF ch 2 - 12, UHF ch 21 - 69
EO	System B, G (PAL, SECAM) VHF ch 2 - 4, 5 - 12, UHF ch 21 - 69 Cable ch S1' -S3', S1 - S20
EOG/EOH	System B, G (PAL, SECAM) VHF ch 2 - 4, 5 - 12, UHF ch 21 - 69 Cable ch S1' - S3', S1 - S41
ES	System I VHF ch A - J (Ireland), ch 4 - 13 (South Africa) UHF ch 21 - 69
RF output	
EA	System B type modulation VHF ch 0,1 switchable (preset ch1)
EDG	System K/G type modulation UHF ch 30 - 39 adjustable (preset ch 36)
EM	System B type modulation VHF ch 3,4 switchable (preset ch4)
EO/EOG/EOH	System G type modulation UHF ch 30 - 39 adjustable (preset ch 36)
ES	System I type modulation UHF ch 30 - 39 adjustable (preset ch 36)
Recording (line input)	
EA/EK/ES	PAL
EDG/EM/EO/EOG/EOH	PAL, SECAM (recorded as MESECAM)
Playback (line output)	
EA/EK	PAL
EDG/EO/EOG/EOH	PAL, SECAM (MESECAM Tape)
EM	PAL, SECAM (MESECAM Tape) NTSC 4.43 (NTSC Tape) Simulated PAL (NTSC Tape Playback only)
ES	PAL NTSC 4.43 (NTSC Tape Playback only) Simulated PAL (NTSC Tape Playback only)
Video	
Line input level	0.5 - 2.0 Vp-p/75 ohms, unbalanced
Line output level	1.0 Vp-p/75 ohms, unbalanced
S/N ratio	More than 45 dB
Horizontal resolution	More than 250 lines
Audio	
Line input level	6 dBs/50 k ohms, unbalanced
Line output level	–6 dBs/1 k ohms, unbalanced
S/N ratio	More than 40 dB
Frequency response	70 - 10,000 Hz
Recording/playback time	
Except EK/EM/ES	240 min. with E-240 cassette
EK	240 min. with E-240 cassette in SP mode 480 min. with E-240 cassette in LP mode
EM/ES	
CCIR	240 min. with E-240 cassette
NTSC (Playback only)	160 min. with T-160 cassette
Tape speed	
Except EK/EM/ES	23.39 mm/sec.
EK	23.39 mm/sec (SP mode) 11.695 mm/sec (LP mode)
EM/ES	
CCIR	23.39 mm/sec
NTSC	33.35 mm/sec
Quick finder	
Except EM/ES	Approx. 7 times normal speed
EM/ES	Approx. 5 times normal speed
FF, REW time	Approx. 2 min. with E-180 cassette
Timer	
Program	
(EK/ES)	1 program/24 hours and OTR
(EXCEPT EK/ES)	4 programs/1 year and OTR
Clock reference	Quartz crystal
Display	FL (Tape counter, Timer, etc.)
Power requirements	
EA	240 V AC, 50 Hz
EDG/ES	220 V AC, 50 Hz
EK	230 - 240 V AC, 50 Hz
EM	110 -127/220 - 240 V AC, 50/60 Hz
EO/EOG/EOH	220 - 230 V AC, 50 Hz
Power consumption	20 W
Operating temperature	5°c - 40°c
Dimensions	425 (W) x 90 (H) x 276 (D) mm
Weight	4.0 kg

Standard accessories

Antenna cable	1
Remote control unit	1
Batteries for remote control	2
Operator's manual	1

0 dBs = 0.775 V

* For improvement purposes, specifications and design are subject to change without notice.
* VIDEO PLUS+ AND PLUSCODE ARE TRADEMARKS OF GEMSTAR DEVELOPMENT CORP. VIDEO PLUS+ SYSTEM IS MANUFACTURED UNDER LICENCE FROM GEMSTAR DEVELOPMENT CORPORATION.
* SHOWVIEW IS A TRADEMARK APPLIED FOR BY GEMSTAR DEVELOPMENT CORP. SHOWVIEW SYSTEM IS MANUFACTURED UNDER LICENCE FROM GEMSTAR DEVELOPMENT CORPORATION.

★ INFORMATION

SYMBOLS FOR PRIMARY DESTINATION

Unit destinations are indicated with letters as shown below.

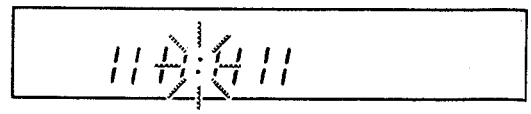
Symbol	Power Classification	Primary destination	TV System	
			Color	Broadcast
EA	S	Australia	PAL	B, G
ED	E	China	PAL	D
EDG	E	East Europe	PAL	D, K
EDI	E	China, Hong Kong	PAL	D, K, I
EG	E	Spain, Northern Europe, Other	PAL	B, G
	Y7	Saudi Arabia		
EK	B	U.K.	PAL	I
	Y1	Hong kong		
EM	E	Middle East	PAL	B, G
	Y7	Saudi Arabia		
EO	E	Holland, Switzerland, Northern Europe	PAL	B, G
	V	Italy		
EOH	E	Holland, Belgium	PAL	B, G
	V	Italy		
EOG	V	Germany	PAL	B, G
ES	E	South Africa, Ireland, Hong kong	PAL	I
EV	E	South-East Asia	PAL	B, G
	U	Middle East, South-East Asia		
	Y1	New Zealand		
	Y7	Saudi Arabia		
EZ	S	New Zealand	PAL	B, G
EGN	E	Middle East	PAL, NTSC	B, G
	Y7	Saudi Arabia		
S	E	France	SECAM	L
SK	E	Latin America, Oceania, SECAM-OIRT	SECAM	K, K1
SEG	E	France, Switzerland	SECAM, PAL	L, B, G
U	A	U.S.A.	NTSC	M
	C	Canada		
UM	U	Latin America	NTSC	M
J	J	Japan	NTSC	M

TRACKING/PICTURE/STABILITY ADJUSTMENT

To correct tracking during the playback, multi-speed playback, quick finder and slow modes, only the remote control buttons can be used for the following operation.

- **To correct tracking during the playback mode**
  Press the AUTO TRACKING button.
  The dot to the right of the seconds indicator on the FL display flashes while the auto tracking control circuit is finding the best tracking position, and disappears after tracking has been corrected.

If tracking is not corrected satisfactorily, press the remote control's "<" or ">" button until the picture is clear.
During manual adjustment, the tracking position will be shown on the FL display. This will disappear automatically when adjustment has been completed. Flashing of the colon means that tracking is at the centre position.



- **To correct tracking during the still mode**
  Press the remote control's "<" or ">" button repeatedly until the picture is clear. The tracking position will not be shown on the FL display.

- **To correct picture shake during the slow motion or still mode**
  Press the remote control's "∧" or "∨" button repeatedly until the picture shake is corrected. The tracking position will not be shown on the FL display.

- **To adjust the picture sharpness during the playback mode**
  Press the "∧" button repeatedly to sharpen the picture or press the "∨" button to soften the picture.
  During adjustment, the picture sharpness control position is shown on the FL display. This will disappear when adjustment has been completed.
  Flashing of the colon means that the picture sharpness is in the normal condition.

ERROR ANNOUNCEMENT

When a malfunction occurs, the following error indicators appear on the FL display to indicate the problem when the power is turned off.

Err 1 = AL power supply has short circuited.
Err 2 = The loading motor has been stopped irregularly.
(When the mechanism position detect switch is not able to read the specified code, that is to say not able to reach to the specified position within the specified time.)
Err 3 = The drum motor has been stopped.
(When the drum motor does not rotate due to condensation, etc.)
Err 4 = The reel motor has been stopped.
Err 5 = The capstan motor has been stopped.
(When the capstan motor does not rotate.)

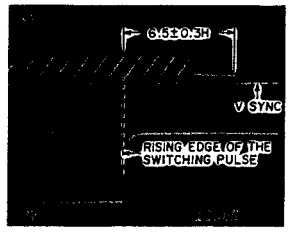
PRESETS IN THE TEST MODE

1) Engaging the "TEST MODE"

To set the VCR to the TEST MODE, press the "reset" button on the front panel first then plug in the AC power cord while pressing and holding both the "POWER" and "STOP/EJECT" buttons on the front at the same time. Next, release your fingers from both the buttons a few seconds later and press the "POWER" button.

2) Video switching point preset

1. Engage the "test mode".
2. Connect CH-1 of an oscilloscope to VIDEO OUT and CH-2 to the TP1 (V-SWP) for triggering.
3. Play back the reference tape TF-530RFS (AT-751775) and press the "REC" button during playback.
4. Confirm that the switching point is positioned 6.5 ± 0.3 H before the left edge of the V-sync as shown.



NOTE:
This switching point preset is absolutely necessary when conditions are as follows.

- When the video head drum (upper drum) is replaced.
- When the DRUM MOTOR PCB or DRUM MOTOR's ROTARY MAGNET (ROTARY PLATE) is replaced.
- When the SERVO/SYSCON MI-COM or EEP ROM IC on the MAIN PCB is replaced.

3) Memorization of the reference RF envelope detect voltage (I-HQ)

For correct operation of the I-HQ tape tuning system, memorization of the reference RF envelope detect voltage is absolutely necessary. When the VIDEO HEAD DRUM, PRE AMP PCB or EEP ROM IC in the MAIN PCB is replaced for any reason, memorize the reference RF envelope detect voltage according to the following procedure.

1. Set the tape speed to "SP mode".
2. Make a recording on the I-HQ test tape "TF-556AT" (AT-751822J) and rewind it to the exact point where the recording was started.
3. Set the VCR to the "test mode" then start playback.
4. Reference RF envelope detect voltage data in the memory is displayed in 2 digits in the hours display part of the FL display and the present envelope detect voltage data is displayed in 2 digits in the minutes display part (the data is displayed in hexadecimal numbers).
5. After the auto tracking has been activated, press the "CANCEL" button on the remote control unit. The present RF envelope detect voltage data will be transferred to the hours part's 2 digits and memorized in the EEP ROM IC.
6. Cancel the "test mode" then set the tape speed to "LP mode" and repeat steps 2 to 5.

4) Other facilities in the test mode

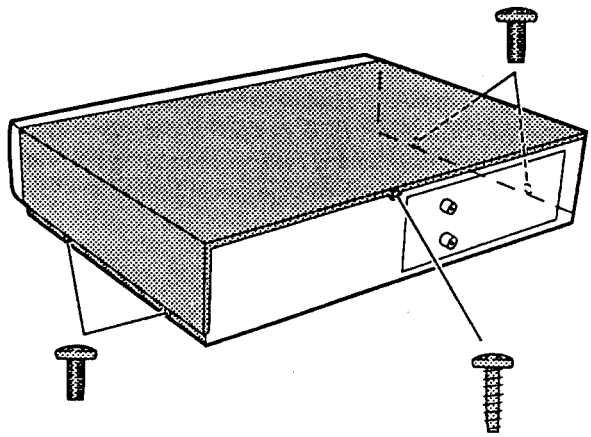
1. **Tracking position display**
   In the "SP play" mode, tracking position data can be displayed on the FL display. Data is displayed in 64 steps in hexadecimal numbers from "00" to "3F" in the seconds display part on the FL display. Pressing the "TV/VCR" button on the remote control unit during playback directly sets the tracking to the maximum "3F" position and pressing the "COUNTER RESET" button sets it to the minimum "00" position.
   Pressing the "PLAY" button during playback sets tracking to the center position "1F" automatically. If "1F" does not appear even when the "PLAY" button is pressed, keep pressing the "<" or ">" cursor button on the remote control unit until "1F" is indicated and then press the "OK" button to memorize the position.
2. **TIMER function confirmation**
   During the "test mode", the clock's minute part is advanced by a second when the power is turned off. This means that the "timer" function can be confirmed in a short time.
3. **Suspension of the tape protection system**
   When the VCR is not in the "test mode", the "REC PAUSE" mode will be released after 30 minutes in order to protect the tape. The "STILL" mode will also be released after 5 minutes. During the "test mode", however this tape protection system will not operate.

※ Video head rotation will stop 5 min. after the "REC PAUSE" mode has been engaged even during the test mode.

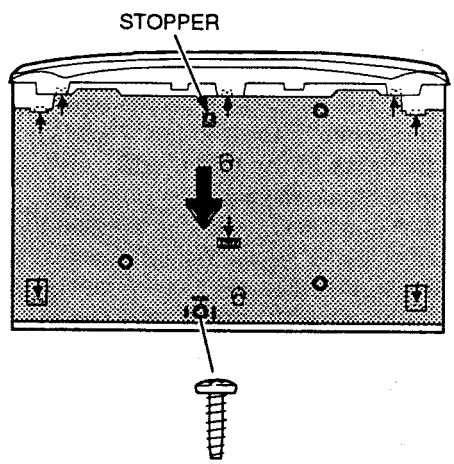
I. DISASSEMBLY

In case of trouble, etc., necessitating dismantling, please dismantle in the order shown in the illustrations.
Reassemble in the reverse order.
When reattaching the FRONT PANEL, hold the cassette loading slot door in the upright (open) position.

1. Removal of UPPER COVER

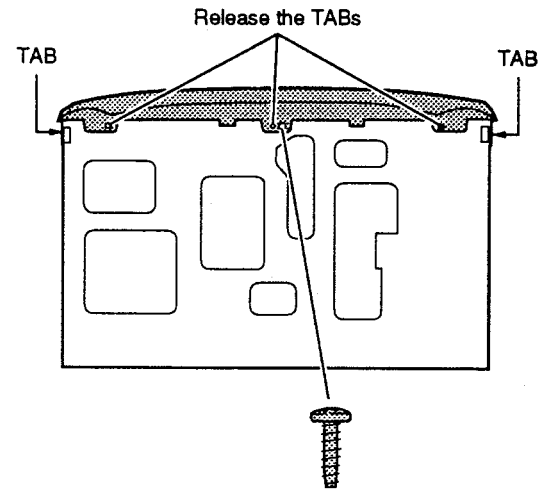


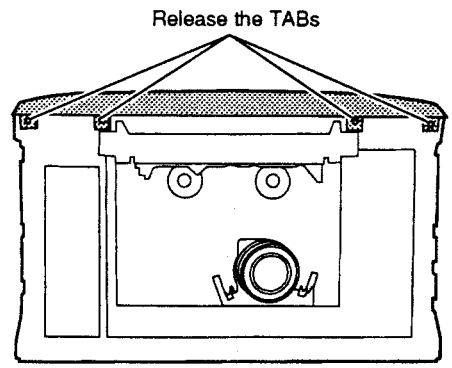
2. Removal of BOTTOM COVER



While pressing the stopper downward, slide the Bottom cover in the direction of the arrow for removal.
When replacing the Bottom cover, make sure it is secured with the tabs.

3. Removal of FRONT PANEL





II. PRINCIPAL PARTS LOCATION

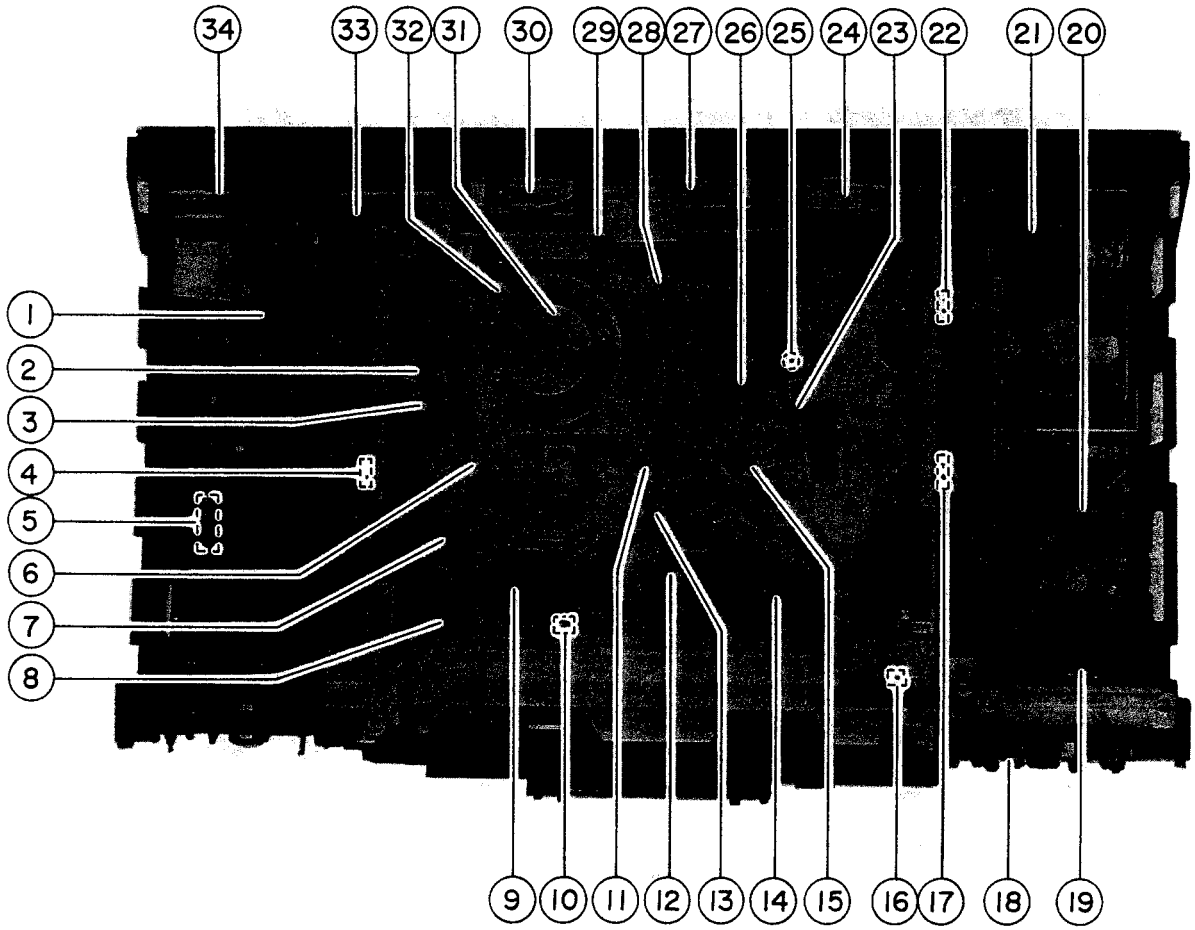


Fig. 2-1 Top view

1. MAIN PCB
2. FULL TRACK ERASE HEAD
3. SUPPLY TAPE GUIDE
4. SENSOR (S) (END SENSOR)
5. VPS PCB (OPTION)(G215EK/EOH(Y1), EOG only)
6. SUPPLY LOADING LEADER
7. TENSION ARM
8. CASSETTE LOAD BLK
9. SUPPLY REEL TABLE
10. REC SAFETY SWITCH
11. TAKE UP LOADING LEADER
12. IDLER PART
13. SENSOR LED
14. TAKE UP REEL TABLE
15. REVIEW ARM
16. S-VHS TAPE DETECT SWITCH
17. SENSOR (T) (START SENSOR)
18. OPERATION PCB
19. TR (B) PCB
20. POWER TRANSFORMER
21. POWER SUPPLY PCB
22. TR (A) PCB
23. PINCH ROLLER
24. VIF UNIT
25. CAPSTAN MOTOR
26. AUDIO/CONTROL/SIDE TRACK ERASE HEAD
27. TUNER UNIT
28. HEAD CLEANER BLOCK
29. PRE AMP PCB
30. RF CONVERTOR UNIT
31. VIDEO HEAD DRUM BLOCK
32. EARTH BRUSH
33. DECODER (B) PCB (EOH Y_2 only)
34. DECODER (A) PCB (EOH Y_2 only)

※ The photograph on this page is of model VS-G211EOH.

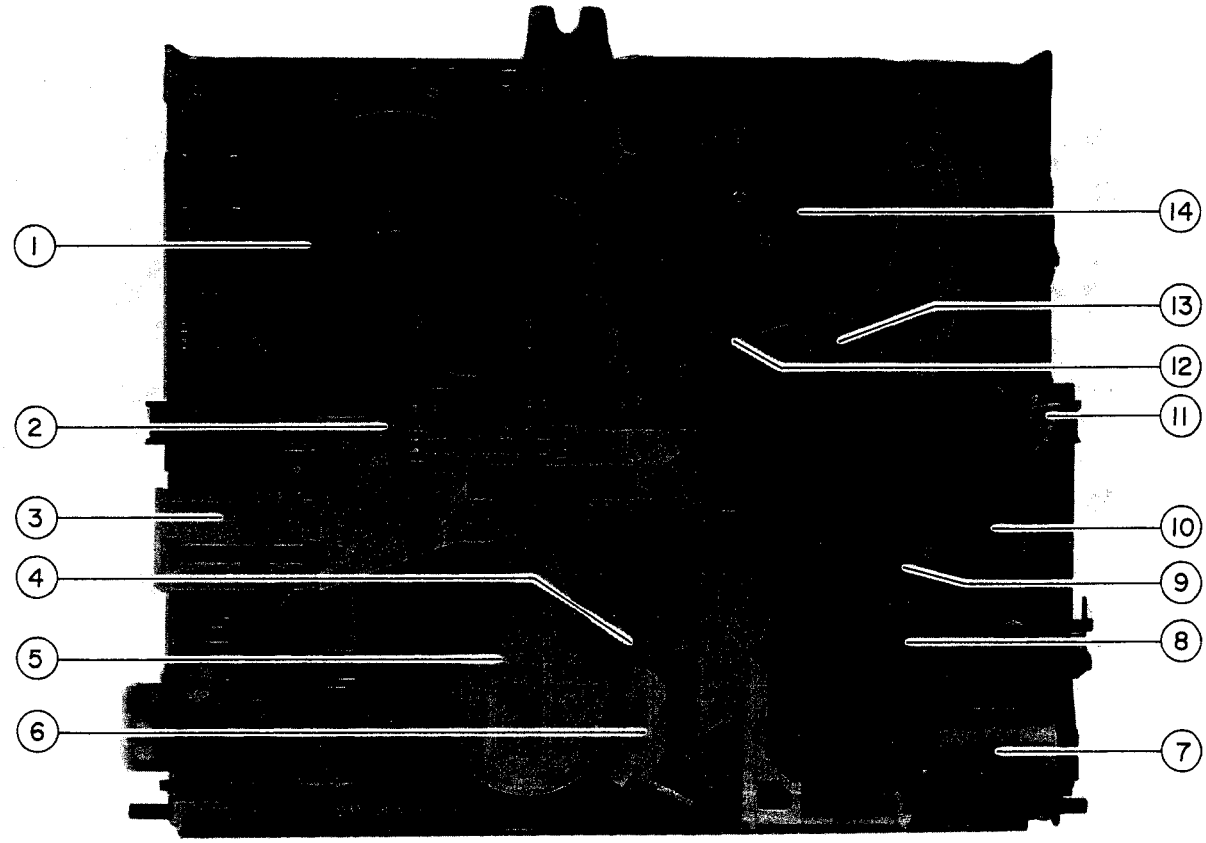


Fig. 2-2 Bottom view

1. CAPSTAN MOTOR BLOCK
2. CAPSTAN BELT
3. PINCH SLIDER
4. GEAR COUPLING BLOCK
5. CLUTCH DISK PART
6. COUPLING ARM
7. LOADING MOTOR
8. LOADING DRIVE BLOCK
9. CAM SLIDER GEAR
10. MODE SELECT SWITCH
11. FRONT LOADING GEAR
12. TOGGLE (T) GEAR BLOCK
13. TOGGLE (S) GEAR BLOCK
14. DRUM MOTOR BLOCK

III. VIEWING THE OPERATION OF THE BOTTOM SIDE OF THE MECHANISM BLOCK

※ In case you want to check the operation of the bottom side of the mechanism block, proceed as follows.

3-1. REMOVAL OF THE FRONT PANEL

1) Remove the FRONT PANEL (refer to step 1-3).

3-2. REMOVAL OF THE MECHANISM BLOCK

1) Remove the three Ⓐ screws on the bottom side as shown in Fig. 3-1.

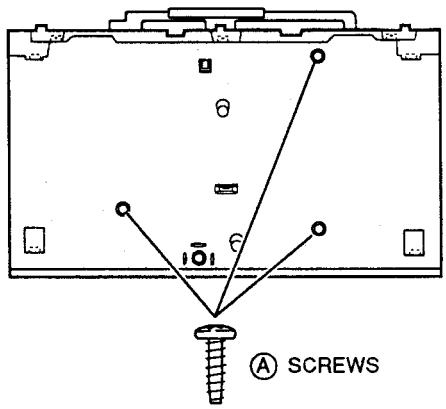


Fig. 3-1

2) Remove the two Ⓑ screws and the Ⓒ screw which retain the MECHANISM BLOCK and the EARTH PLATE as shown in Fig. 3-2.

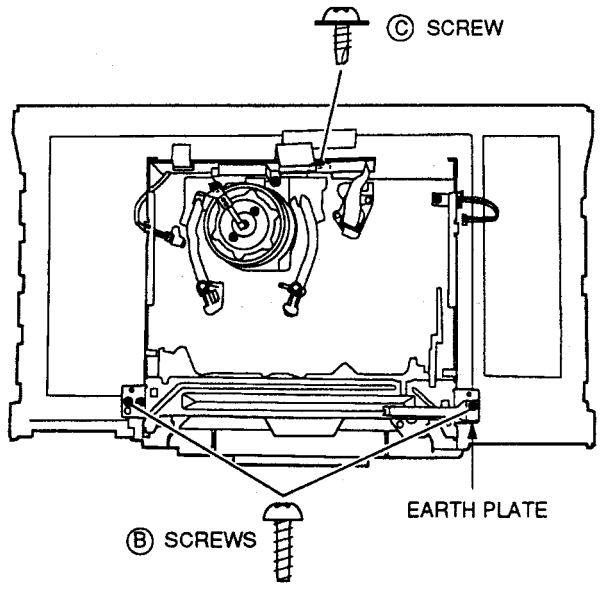


Fig. 3-2

3) Remove the MECHANISM BLOCK and place a video cassette which is no longer needed or something else that is substitutable (must be made of insulated material) on the MAIN PCB.
4) Place the MECHANISM BLOCK on the tape etc., standing it on end as shown in Fig. 3-3 with care not to damage the flat cables on the PRE AMP PCB.

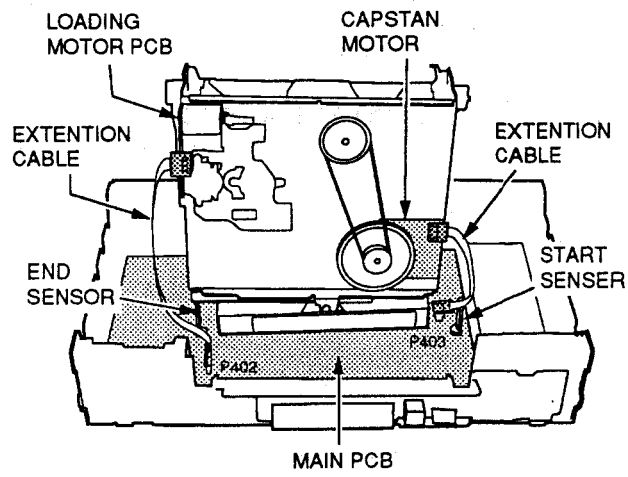


Fig. 3-3

3-3. CONNECTING THE EXTENSION CABLE

1) Connect the two extension cables (which are provided as the service jig) between the CAPSTAN MOTOR BLOCK and the P403 on the MAIN PCB, the LOADING MOTOR PCB and P402 on the MAIN PCB.

NOTE : The "FRONT" mark of the extension cable's PCB must be facing front when connecting.

3-4. TURNING THE POWER ON

1) Place a cover (a ball point pen's cap etc.) on the start sensor as shown in Fig. 3-3 in order to intercept the light to the sensor. The cap must be black or metal.
2) Engage the test mode (refer to in the information section, "PRESETS IN THE TEST MODE").
3) Remove the cover on the start sensor immediately after the cassette tape is inserted in the ejector so that the tape is drown down automatically.
4) Cover both the start and end sensors at the same time with the covers right before the cassette tape reaches the lower position.
   Although the reel pulse is not generated, any modes except "REC" mode can be operated in this condition.
5) In case you want to change the tape, eject the present tape by pressing the "EJECT" button then remove the cover on the end sensor and repeat the steps 3) to 4).

IV. DISASSEMBLY OF THE MAIN COMPONENTS

4-1. REMOVAL OF THE MECHANISM BLOCK

NOTE: Some parts in the mechanism block require complete removal of the mechanism block from the chassis when performing servicing.
Set the loading mechanism to the "EJECT" position by pressing the "EJECT" button, then disconnect the AC power plug from the AC socket before proceeding. This sets the loading mechanism to the "reference position".

4-1-1. Removal of the PRE AMP PCB

1) Disconnect the two flat cables from the P2 and P4 connectors respectively.
2) Disconnect the connectors on the AC/HEAD and FULL TRACK ERASE HEAD.

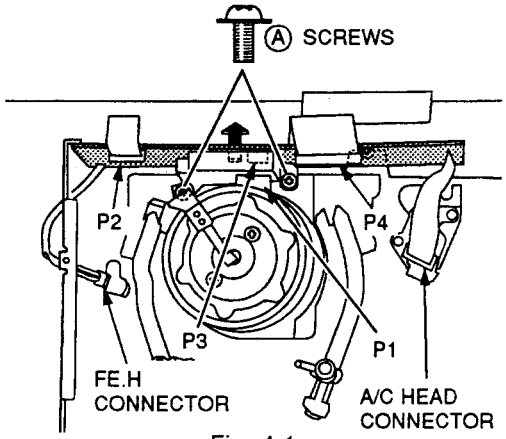


Fig. 4-1

3) Remove one of the Ⓐ screws and remove the EARTH BRUSH.
4) Remove the other Ⓐ screw, then press the lower side of the shield case in the direction of the arrow as shown in Fig. 4-1.
5) Proceed in the reverse order for installation. Carefully align the connectors between the one on the DRUM MOTOR PCB, the one on the LOWER DRUM and P1, P3 on the PRE AMP PCB.

4-1-2. Removal of the TR (A) PCB

1) Remove the Ⓑ transistor retaining screw, then remove the TR (A) PCB from the MECHANISM BLOCK.

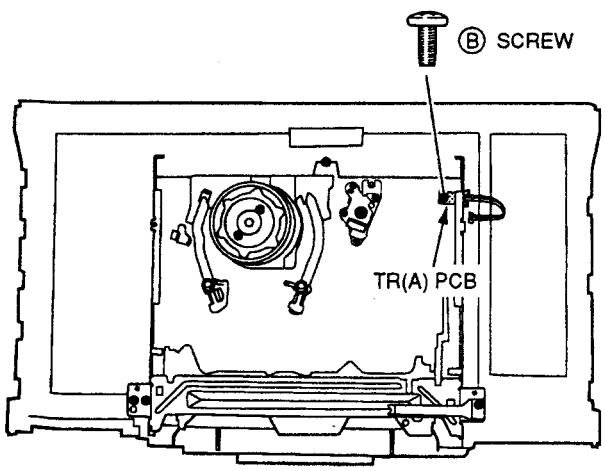


Fig. 4-2

4-1-3. Removal of the MECHANISM BLOCK

1) Remove the three retaining screws on the bottom (refer to Fig. 3-1 on page 9).
2) Remove the two Ⓓ screws and the Ⓔ screw which retain the MECHANISM BLOCK and the EARTH PLATE as shown in Fig. 4-3.

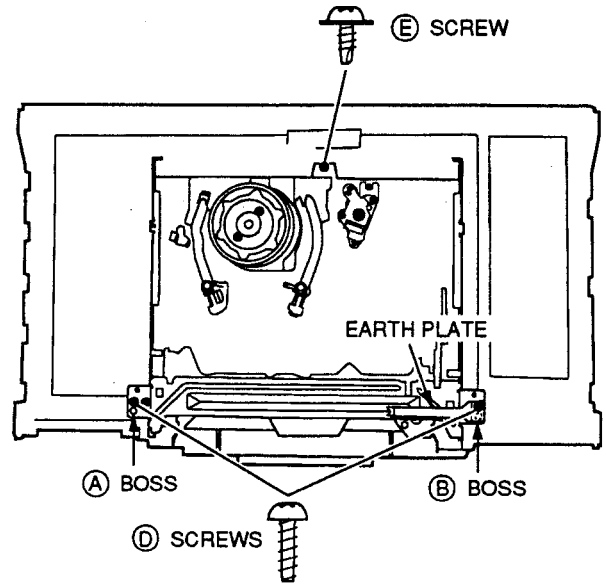


Fig. 4-3

3) Pull up the MECHANISM BLOCK carefully for detaching it from the chassis and the MAIN PCB.

4-1-4. Installation of the MECHANISM BLOCK

1) Carefully align the Ⓐ and Ⓑ bosses on the chassis with their corresponding holes on the MECHANISM BLOCK and then tighten the three screws (refer to Fig. 4-3).
2) Proceed in the reverse order of 4-1-1 to 4-1-2 for installation.

4-2. REMOVAL OF THE EJECTOR BLOCK

4-2-1. Removal of the CASSETTE LOAD BLOCK

1) Remove the two Ⓐ screws on the UPPER PLATE, as shown in Fig. 4-4 then remove the UPPER PLATE.

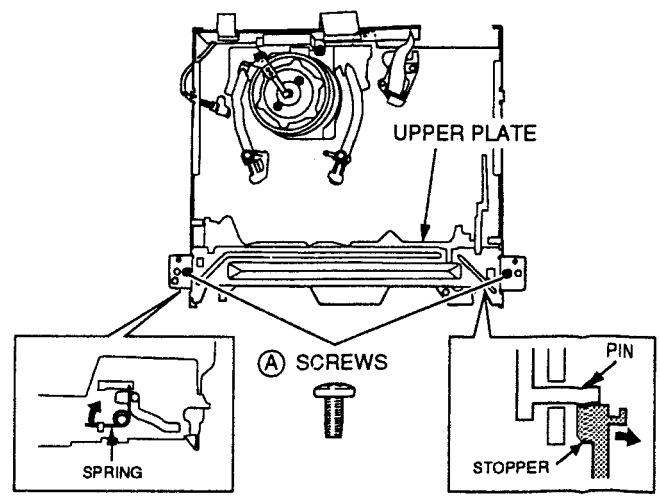


Fig. 4-4

2) Unhook the spring and remove it as shown in Fig. 4-4.
3) While pressing the right STOPPER in the direction of the arrow (refer to Fig. 4-4), gently remove the right side pin of the CASSETTE LOAD BLOCK from the rail by pulling it in the forward direction. Next, remove the left side pin in the same manner, then remove the CASSETTE LOAD BLOCK. To avoid damaging the pins of the CASSETTE LOAD BLK and the rail of the MECHA. FRAME, do not use excessive force when removing the CASSETTE LOAD BLK.

4-2-2. Removal of the LOADING ARM BLK

1) Release the stopper on the right side end of the LOADING ARM BLK's shaft (refer to Fig. 4-5) by pressing the stopper tab with a flat head (−) screwdriver. Then remove the shaft's right end from the bracket.

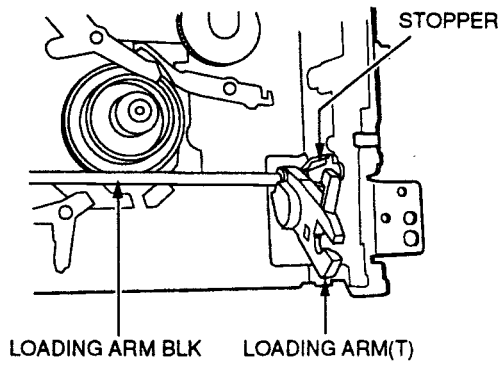


Fig. 4-5

2) Hold the LOADING ARM (T) and then pull out the shaft's left end from the bracket. Take special care when removing it to avoid damaging the pins (refer to Fig. 4-5).

4-2-3. Reassembling

1) Proceed in the reverse order of 4-2-1 to 4-2-2 for installation.

4-3. REMOVAL OF THE MODE SELECT SWITCH

Before proceeding with removal of the MODE SELECT SWITCH, the loading mechanism must be set to the "reference" position. If it has not already been set, use the following procedure to set the reference position.

※ Connect a 6V battery to the loading motor until both the cam slider gear and mode select switch reach the reference position (refer to Fig. 4-7).

4-3-1. Removal of the MODE SELECT SWITCH

1) Unsolder the 5 leads of the mode select switch.

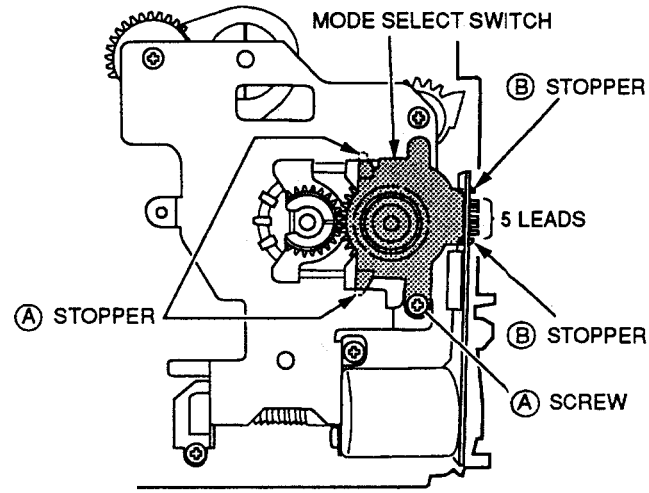


Fig. 4-6

2) Remove the Ⓐ screw.
3) While releasing the two Ⓐ stoppers and two Ⓑ stoppers, carefully remove the mode select switch by pulling it up and to the left.

4-3-2. Installation of the MODE SELECT SWITCH

1) Install the mode select switch in the reverse order of 4-3-1. When mounting the mode select switch, align the mode select switch's Ⓐ mark with the Ⓑ mark on the cam slider gear as shown in Fig. 4-7.

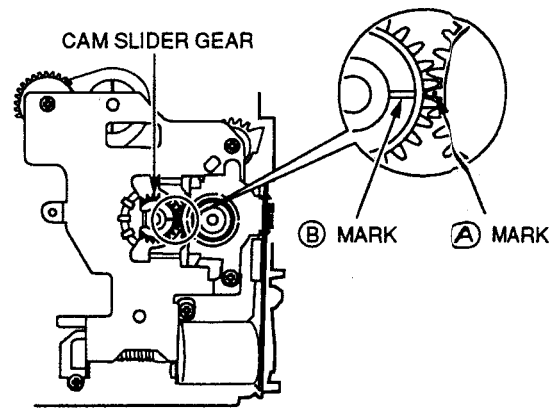


Fig. 4-7

4-4. DISASSEMBLY OF THE LOADING DRIVE BLOCK

※ Set the loading mechanism to the "reference" position. Refer to 4-3, "REMOVAL OF THE MODE SELECT SWITCH" before proceeding.

4-4-1. Removal of the LOADING DRIVE BLOCK

1) Remove the MODE SELECT SWITCH (refer to 4-3-1 "removal of the MODE SELECT SWITCH") if necessary.
2) Remove the Ⓐ, Ⓑ, Ⓒ and Ⓓ screws then remove the LOADING DRIVE BLOCK as shown in Fig. 4-8.

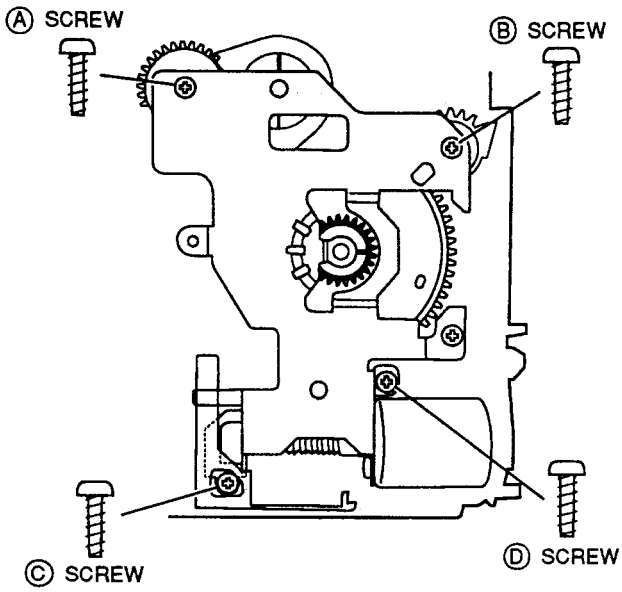


Fig. 4-8

4-4-2. Replacement of the LOADING MOTOR

1) Remove the LOADING DRIVE BLOCK (refer to 4-4-1)
2) Unsolder the two leads of the LOADING MOTOR.
3) Remove the two installation screws.

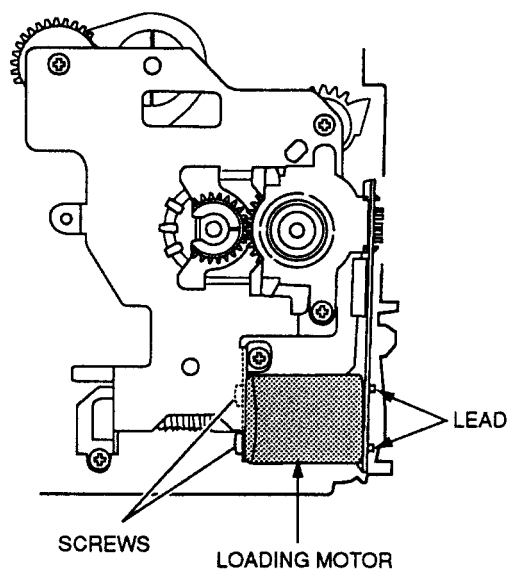


Fig. 4-9

4) Reassemble in the reverse order for installation.

4-5. REASSEMBLY OF THE LOADING MECHANISM BLK

4-5-1. Position of the TOGGLE GEARs (T) and (S)

1) Set the TOGGLE GEARs (T) and (S) to the unloaded position with your fingers. Align the Ⓐ mark on the TOGGLE GEAR (S) with the Ⓐ hole of the TOGGLE GEAR (T) as shown in Fig. 4-10.

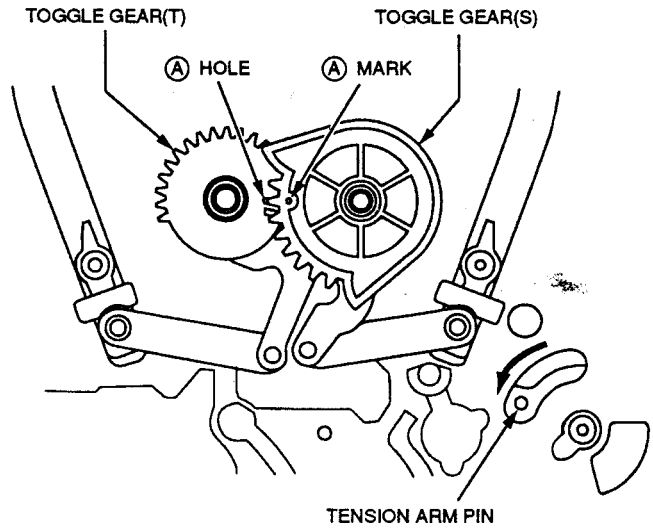


Fig. 4-10

NOTE : When positioning the TOGGLE GEAR (S), the TENSION ARM's pin should be moved in the direction of the arrow before placing the TOGGLE GEAR (S) onto its shaft.

4-5-2. Installation of the CAM SLIDER GEAR & FRONT LOADING GEAR

1) Attach the WORM WHEEL GEAR as shown in Fig. 4-11.

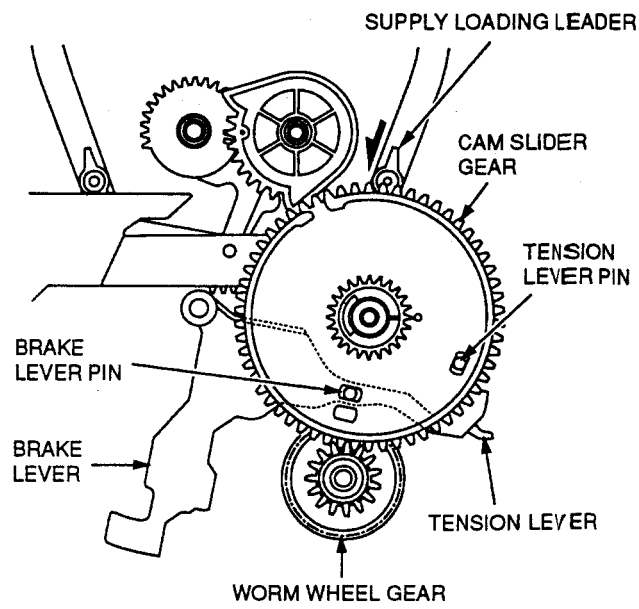


Fig. 4-11

2) Place the CAM SLIDER GEAR on the shaft and adjust the position of the BRAKE LEVER and TENSION LEVER so that both pins appear through the holes on the CAM SLIDER GEAR as shown in Fig. 4-11. When inserting the CAM SLIDER GEAR onto its shaft, press the SUPPLY LOADING GEAR slightly in the direction of the arrow to make installation easy.
3) Attach the FRONT LOADING GEAR so that the Ⓐ mark on the FRONT LOADING GEAR aligns with the Ⓑ mark on the FRONT LOADING SLIDER and that the Ⓒ mark on the FRONT LOADING GEAR aligns with the Ⓓ mark on the CAM SLIDER GEAR as shown in Fig. 4-12.

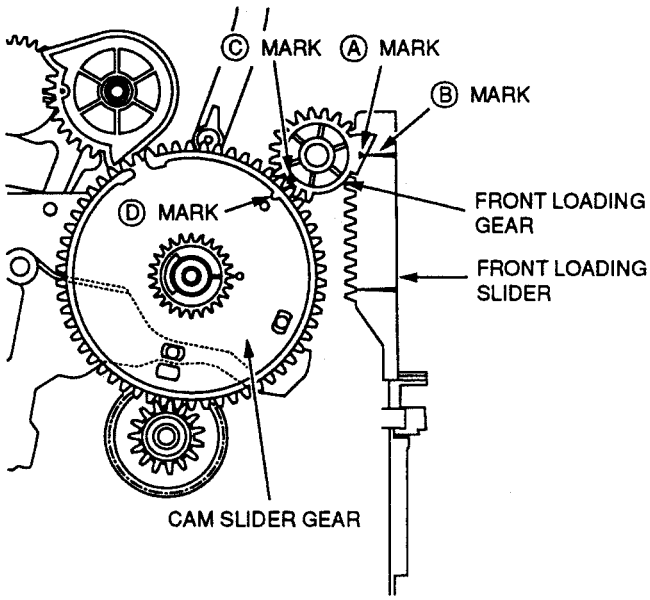


Fig. 4-12

4-5-3. Installation of the LOADING BLOCK & MODE SELECT SWITCH

1) Install the LOADING DRIVE BLOCK as shown in Fig. 4-13. Align the Ⓐ mark on the MODE SELECT SWITCH's gear with the Ⓑ mark on the CAM SLIDER GEAR when installing. (Refer to 4-3-2, "Installation of the MODE SELECT SWITCH".)

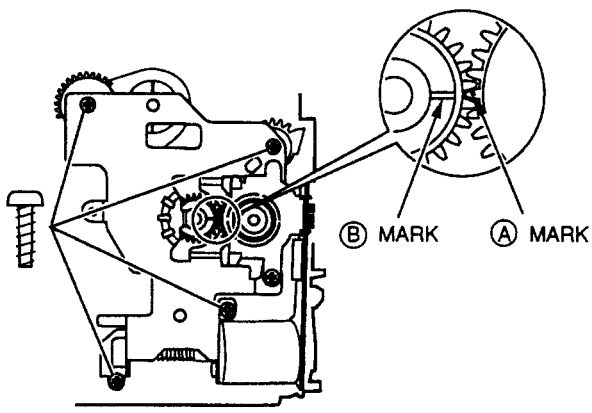


Fig. 4-13

4-6. REPLACEMENT OF THE DISK CLUTCH BLOCK & GEAR COUPLING BLOCK

1) Remove the SLIT WASHER as shown in Fig. 4-14.

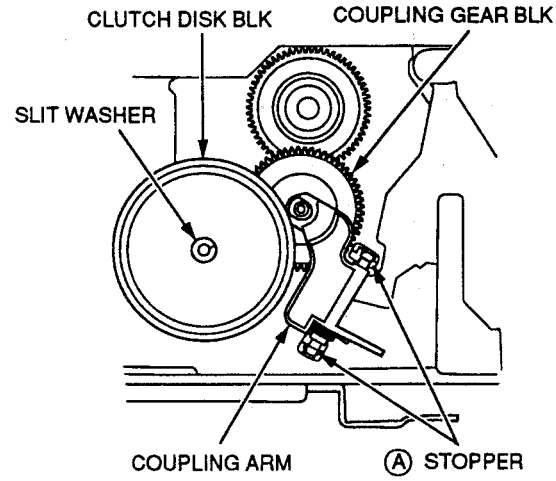


Fig. 4-14

2) Release the two Ⓐ stoppers of the COUPLING ARM and pull up the CLUTCH DISK BLOCK and COUPLING GEAR BLOCK at the same time.
3) Reassemble in the reverse order for installation.

4-7. REPLACEMENT OF THE REVIEW BRAKE PART & IDLER PART

4-7-1. Replacement of the REVIEW BRAKE PART

1) Un hook the Ⓐ spring, then release the stopper of the REVIEW BRAKE PART and remove it.

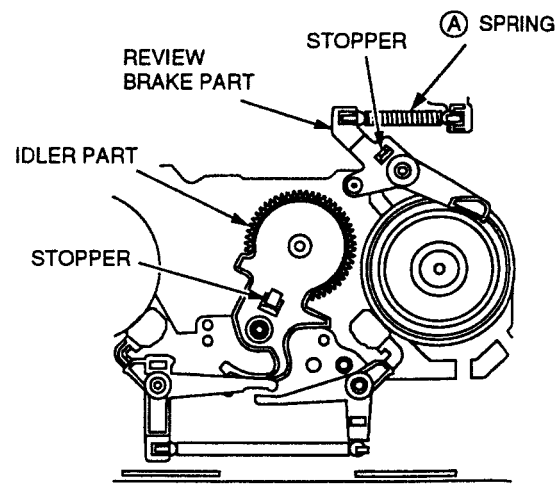


Fig. 4-15

2) Reassemble in the reverse order for installation.

4-7-2. Replacement of the IDLER PART

1) Remove the CASSETTE LOAD BLOCK & LOADING ARM BLOCK. (Refer to 4-2, "Removal of the EJECTOR BLOCK".)
2) Release the stopper of the IDLER PART and remove it as shown in Fig. 4-15.
3) Reassemble in the reverse order for installation.

4-8. REPLACEMENT OF THE PINCH ROLLER BLOCK

1) Remove the Ⓐ spring, then remove the PINCH ROLLER ARM BLOCK by turning it in the direction of the arrow and pulling it upward as shown in Fig. 4-16.

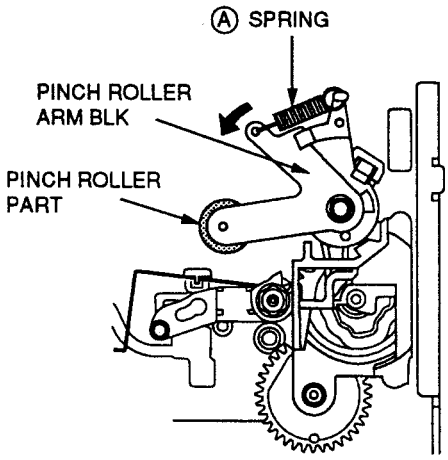


Fig. 4-16

2) Reassemble in the reverse order for installation.

4-9. DISASSEMBLY OF THE PINCH LEVER & PINCH HOLDER

4-9-1. Removal of the PINCH LEVER and PINCH HOLDER

1) Remove the two Ⓐ screws then remove the PINCH LEVER and PINCH HOLDER.

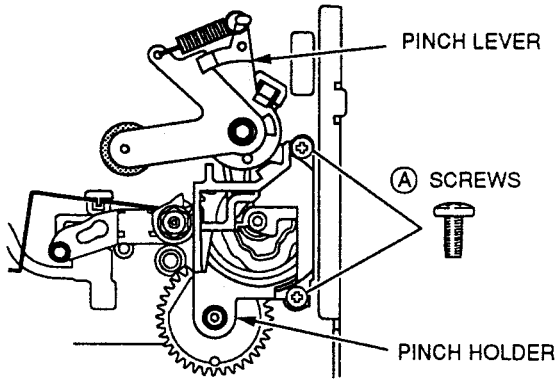


Fig. 4-17

4-9-2. Installation of the PINCH LEVER and PINCH HOLDER

1) Align the Ⓐ hole on the PINCH SLIDER with the Ⓐ mark on the PINCH GEAR through the hole on the chassis as shown in Fig. 4-18.

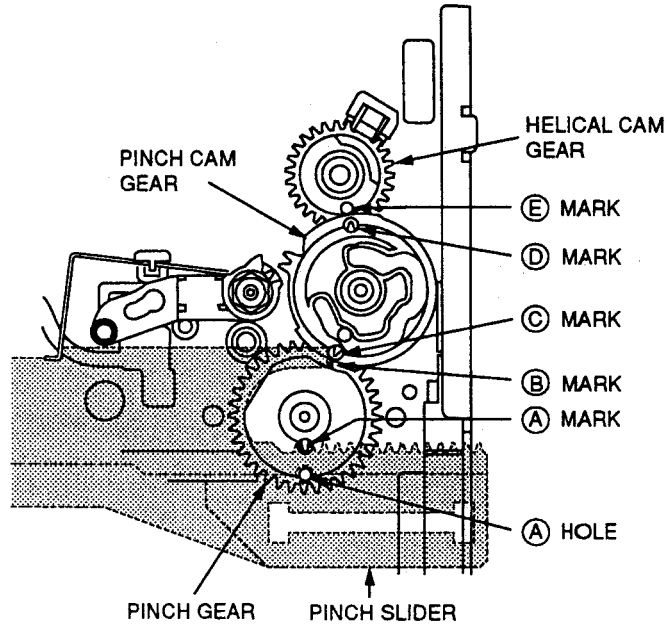


Fig. 4-18

2) Align the Ⓑ mark on the PINCH GEAR with the Ⓒ mark on the PINCH CAM GEAR and the Ⓓ mark on the PINCH CAM GEAR with the Ⓔ mark on the HELICAL CAM GEAR as shown in Fig. 4-18.
3) Install the PINCH LEVER and PINCH HOLDER in the reverse order.

4-10. REPLACEMENT OF THE CAPSTAN MOTOR BLOCK

1) Remove the three Ⓐ screws as shown in Fig.4-19.

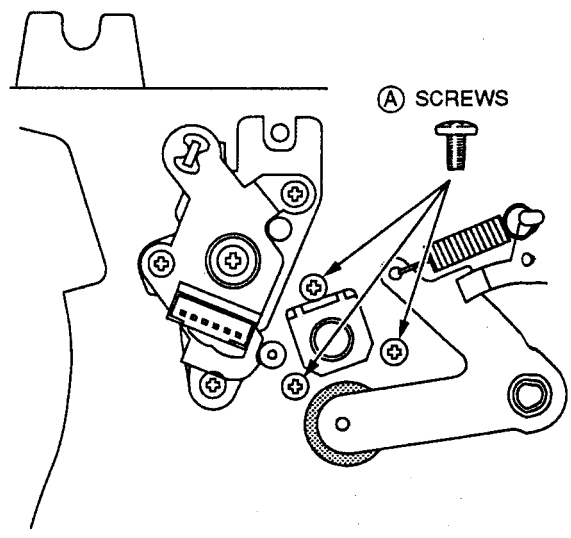


Fig. 4-19

2) Remove the CAPSTAN BELT.
3) Remove the Ⓑ screw and then remove the CAPSTAN MOTOR HOLDER.

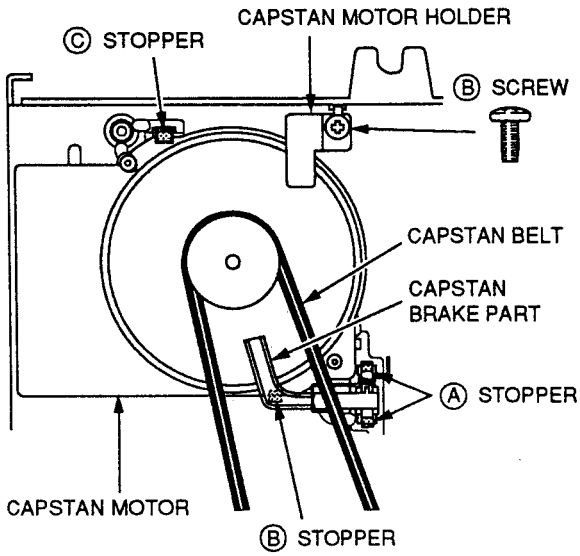


Fig. 4-20

4) Release the two Ⓐ stoppers and remove the CAPSTAN BRAKE PART.
5) Remove the CAPSTAN MOTOR BLOCK while releasing the Ⓑ and Ⓒ stoppers.
6) Proceed in the reverse order for installation.

4-11. DRUM MOTOR PC BOARD REPLACEMENT

1) Remove the two Ⓐ screws on the ROTARY PLATE and then remove it.
(If the PRE AMP PCB is not removed yet, remove it first before removing the Ⓐ screws. Refer to 4-1-1, "Removal of the PRE AMP PCB".)

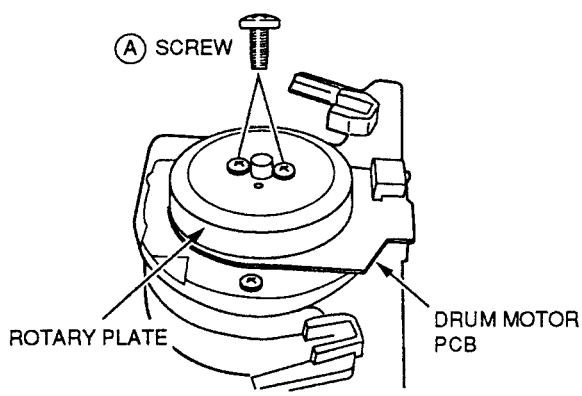


Fig. 4-21

2) Remove the three Ⓑ screws which retain the DRUM MOTOR PCB and replace it.

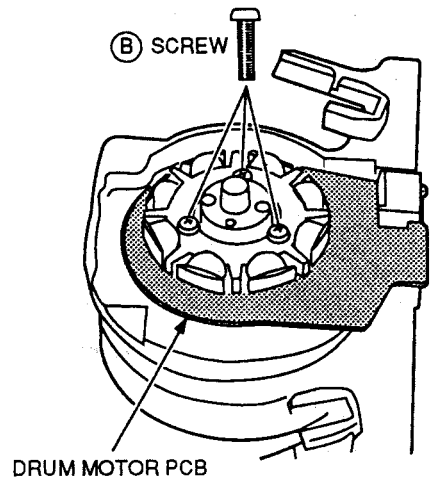


Fig. 4-22

3) Attach the ROTARY PLATE to the collar preload so that the rotary plate Ⓒ hole and collar preload Ⓓ hole line up.

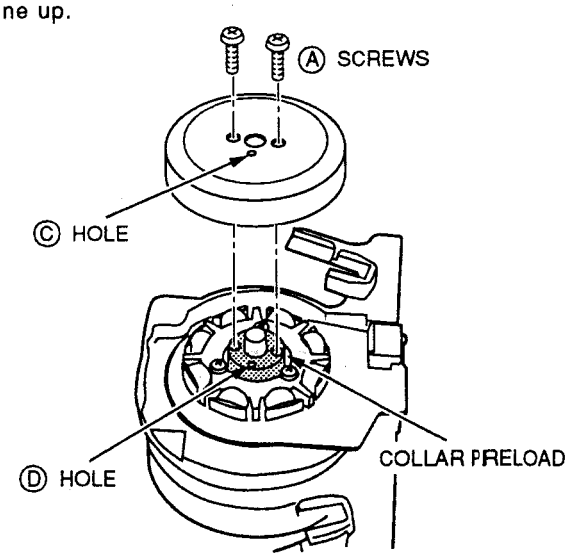


Fig. 4-23

4) After replacement, PB switching point adjustment (INFORMATION, PRESET IN THE TEST MODE, #2) is absolutely necessary for the proper performance.

4-12. REPLACEMENT OF THE UPPER DRUM

4-12-1. Removal of the UPPER DRUM

1) Unsolder the four relay leads and remove the two upper drum fixing screws as shown in Fig. 4-24.

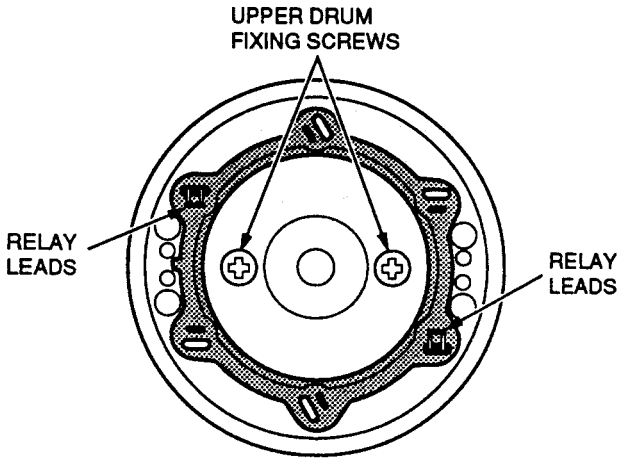


Fig. 4-24

2) Gently lift and remove the UPPER DRUM.

4-12-2. Installation of the UPPER DRUM

1) Attach the UPPER DRUM to the LOWER DRUM ROTOR, so that the upper drum convex Ⓐ and lower drum rotor's white PCB line up, as shown in Fig. 4-25.

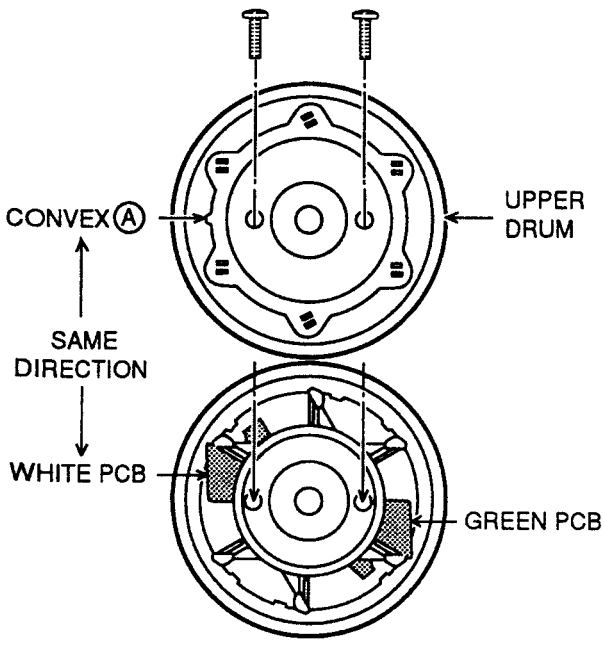


Fig. 4-25

NOTE : Because height precision is required for proper performance, and because head tips are fragile, the following points should be noted when replacing the UPPER DRUM BLOCK.

(a) Do not loosen the set screw on the collar preload.
(b) Before fixing, use alcohol to clean both surfaces where the upper drum and the rotary transformer meet.
(c) If the UPPER DRUM can not be inserted on to the shaft easily during installation, clean the hole in the UPPER DRUM with alcohol and put a little oil on the shaft.
(d) Make sure that the upper drum fixing screw holes, on the rotary transformer part, and the upper drum fixing screw penetration holes match exactly before inserting the fixing screws.
(e) Tighten the two upper drum fixing screws alternately and gradually.

4-12-3. After replacement

After replacement, the following adjustments are necessary for the proper performance.

1) Control head phase adjustment. (MECHANICAL ADJUSTMENT 5-3-3.)
2) PB switching point adjustment. (INFORMATION, PRESET IN TEST MODE #2)
3) ENV. DET (I-HQ) adjustment. (INFORMATION, PRESET IN THE TEST MODE #3)
4) Video head REC current adjustment. (VI. ELECTRICAL ADJUSTMENT Step 4)

V. MECHANICAL ADJUSTMENT

5-1. BACK TENSION ADJUSTMENT

1) Prepare a video cassette tape which you no longer need. Remove both tape reels and the tape protection cover from the cassette tape. Next, cover the video cassette's left and right detection holes with black adhesive tape.
2) Engage the playback mode using with a tapeless tape.
3) Confirm the distance between the three marks (lines) on the TENSION ARM and the Ⓐ mark on the MECHA. CHASSIS so that the Ⓐ mark aligns with the right edge of the center line on the TENSION ARM as shown in Fig. 4-1.
4) If the result is not satisfactory, eject the tape and adjust the TENSION ADJUST repeatedly until a satisfactory result is achieved.

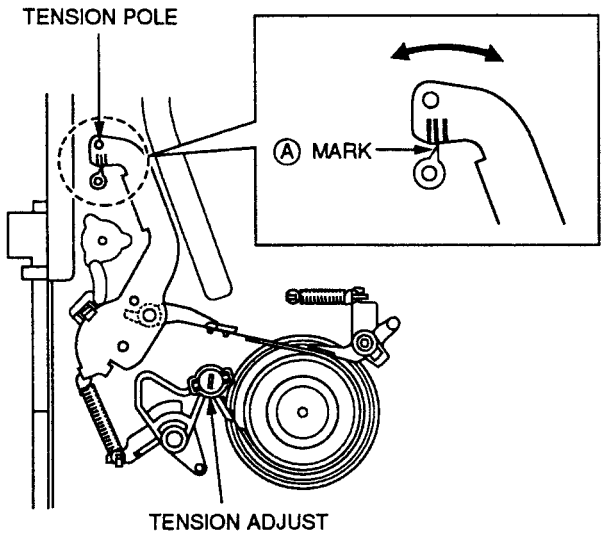


Fig. 5-1

5-2. TAPE TRANSPORT ADJUSTMENTS

NOTE : The following adjustments are required only when an irregularity is found, since these adjustments are precisely set at the factory.

5-2-1. Tape curl adjustment at the TAKE-UP TAPE GUIDE

1) Play back a recorded tape which is no longer needed.
2) Turn the Ⓐ screw on the A/C HEAD BLK, until the edge of the tape barely touches the lower part of the TAKE UP TAPE GUIDE, without any curl or wrinkle.

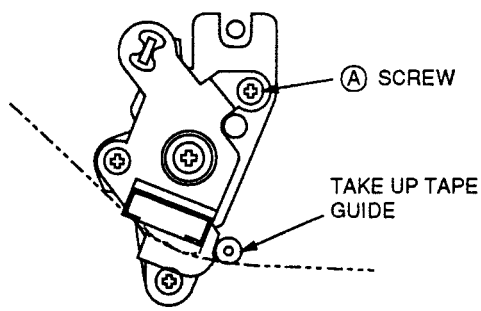


Fig. 5-2

(TAKE-UP TAPE GUIDE)

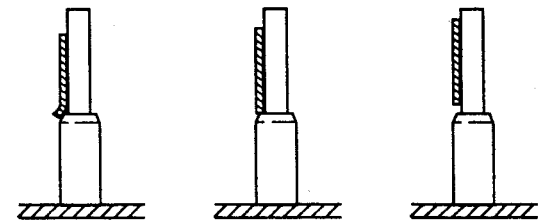


Fig. 5-3

3) Once the Ⓐ screw is adjusted, A/C HEAD height and azimuth adjustment is required. (Refer to 4-3. A/C HEAD POSITION ADJUSTMENT.)

5-2-2. Tape curl adjustment at the SUPPLY TAPE GUIDE

Confirm that the lower edge of the tape barely touches the lower part of the SUPPLY TAPE GUIDE, without any curl or wrinkle as shown in Fig. 5-4a. If necessary, bend the neck part of the TENSION ARM in the Ⓐ or Ⓑ direction slightly until a satisfactory result is achieved.

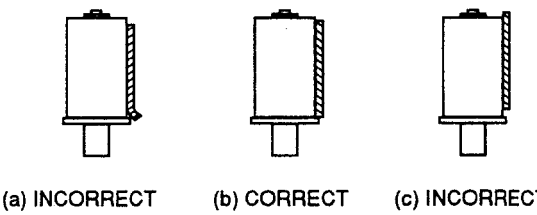


Fig. 5-4a

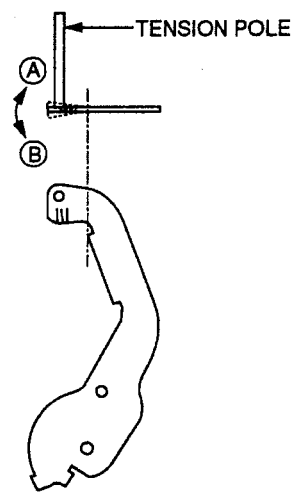


Fig. 5-4b

5-2-3. REVIEW ARM height adjustment

1) Play back the beginning part of an E-240 (T-160) tape and set the unit to the REVIEW mode by pressing the REW button. (Remove the tape protection cover to make the adjustment easier.)

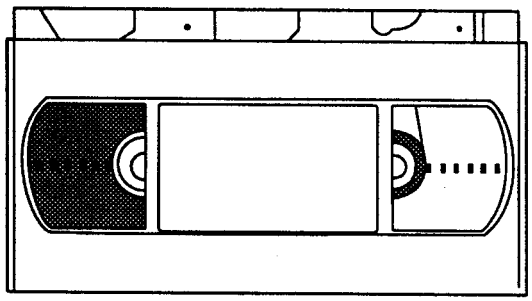


Fig. 5-5

2) Turn the REVIEW ARM height Ⓐ nut so that the edge of the tape barely touches the lower part of the TAKE-UP TAPE GUIDE, without any curl or wrinkle between the TAKE-UP TAPE GUIDE and the CAPSTAN SHAFT as shown in Fig. 5-6 to Fig. 5-8.

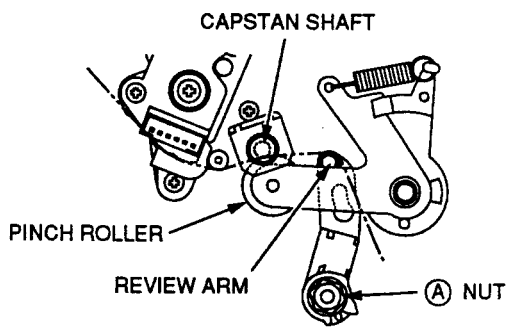


Fig. 5-6

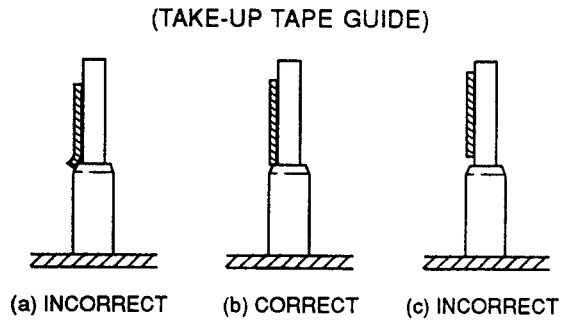


Fig. 5-7

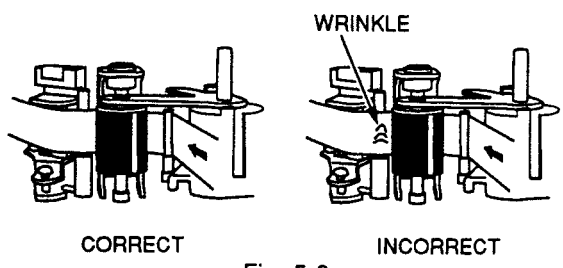


Fig. 5-8

3) Play back the beginning part of an E-240 (T-160) tape and this time set the unit to the CUE mode by pressing the F. FWD button.

4) Confirm there is no curl or wrinkle near the REVIEW ARM's guide. If curl or wrinkle of the tape occurs, slightly turn the Ⓐ nut (Shown in Fig. 5-6) until it disappears.

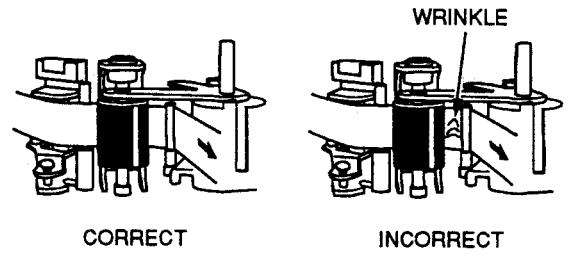


Fig. 5-9

5) Set the unit to the REVIEW mode again. Then confirm that there is no curl or wrinkle near the TAKE-UP TAPE GUIDE. (A small gap may appear after this adjustment, but this is allowable.)

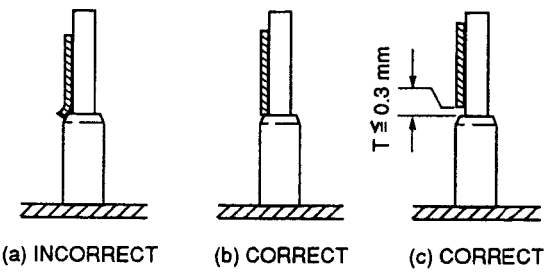


Fig. 5-10

NOTE :

1. If the results are not satisfactory, repeat steps 2) to 5).
2. Always play an undamaged tape to obtain satisfactory adjustment.
3. Because an E-240 (T-160) tape can be damaged easily, due of its thinness, a pre-adjustment with an E-180 (T-120) tape is recommended.

5-2-4. LOADING LEADER height adjustments

1) Slightly loosen the set screw at the lower part of the LOADING LEADERs (L), (R) so that the LOADING LEADER can be adjusted with reasonable tightness. (Refer to Fig. 5-11.)

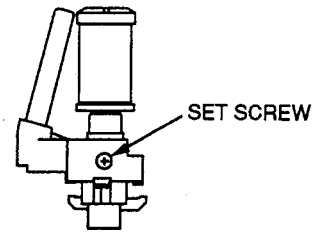


Fig. 5-11

2) Play back the reference tape TF-530RFS (AT-751775).
3) Connect an oscilloscope's CH-1 to the TP2 (ENVE) on the PRE AMP PCB and CH-2 to the TP1 (V-SWP) for triggering.
4) Turn the LOADING LEADER heads with a flat head(—) screw driver to obtain a flat RF envelope as the ideal envelope, as shown in Fig. 5-12.
5) After adjustment is completed, tighten the loading leader set screws.

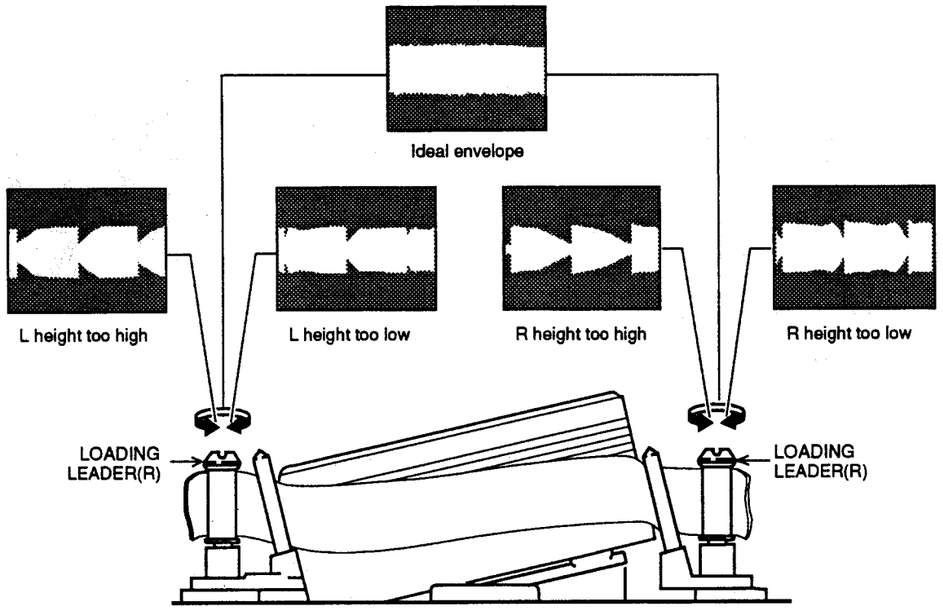


Fig. 5-12

5-3. A/C HEAD POSITION ADJUSTMENT

5-3-1. Azimuth adjustment

1) Connect an AC voltmeter or an oscilloscope to the AUDIO OUT terminal on the rear panel.
2) Play back the reference tape TF-530RFS (AT-751775).
3) Adjust the Ⓑ screw to obtain the maximum audio output.

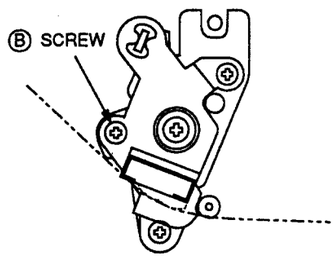


Fig. 5-13

5-3-2. Height adjustment

1) Play back test tape TF-526HH (AT-751788).
2) Connect an oscilloscope's CH-1 to the AUDIO OUT terminal on the rear panel and CH-2 to TP401 (CTL OUT) on the MAIN PCB.
3) Turn the Ⓒ screw to obtain 1/2 of the output level of either CH-1 or CH-2, whichever has an output signal as shown in Fig. 5-14 and 5-15.
Next, set both of the oscilloscope's channels to 100 mV/div and finely adjust the Ⓒ screw until both signals of CH-1 and CH-2 are nearly the same level as show in Fig. 5-15.

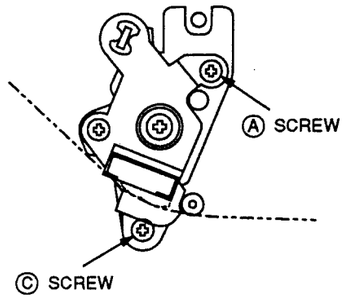


Fig. 5-14

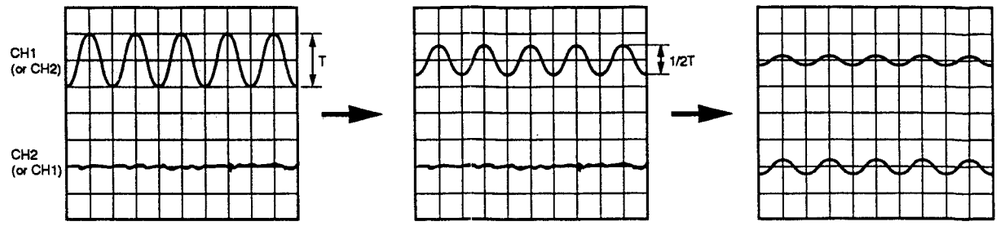


Fig. 5-15

4) Slightly turn the Ⓐ screw until the tape edge barely touches the lower part of the TAKE-UP TAPE GUIDE without any curl or wrinkle as shown in Fig. 5-3.
5) Adjust the head azimuth again. (Turning the Ⓒ screw, or Ⓐ screw, will cause head azimuth mis-alignment. Refer to 5-3-1. Azimuth adjustment.)
6) Confirm that both signals of CH-1 and CH-2 are nearly the same level. (Confirm that neither of the CH-1 or CH-2 output levels exceed 100 mVp-p.) If the result is not satisfactory, repeat steps 3) to 5).

5-3-3. Phase adjustment

1) Connect an oscilloscope's CH-1 to the TP2 (ENVE) on the PRE AMP PCB and CH-2 to the TP1 (V-SWP) for triggering.
2) Play back reference tape TF-530RFS (AT-751775).
3) Press one of the TRACKING buttons on the remote control unit until the flashing point reaches the centre position of the tracking range (colon) on the FL display as shown in Fig. 5-16.

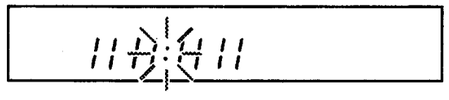


Fig. 5-16

4) Loosen the Ⓓ screw slightly so that the A/C HEAD BASE can be moved with reasonable tightness.

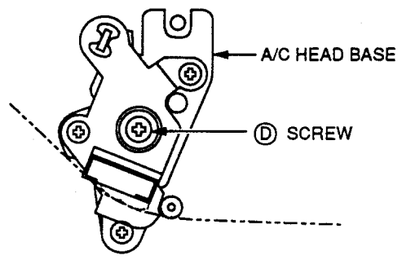


Fig. 5-17

5) Insert a philips type screwdriver into the A/C HEAD BASE and Ⓐ hole as shown in Fig. 5-18.

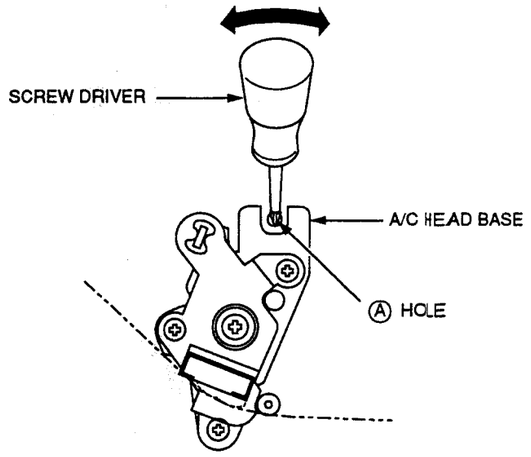


Fig. 5-18

6) Move the A/C HEAD BASE by moving a screwdriver in the direction of the arrow as shown in Fig. 5-18 to obtain the maximum RF output, then tighten the Ⓓ screw.
7) Eject the tape and then re-insert it and play it back again. Confirm that the RF output is maximum after the auto tracking control has been activated. Next, press the "<" or ">" cursor button on the remote control unit alternately and confirm that the RF output is maximum at the tracking centre position. If the result is not satisfactory, repeat the adjustment steps 2) to 6). (This adjustment is very important as this affects the interchangeability of the recorded tapes.)

VI. ELECTRICAL ADJUSTMENT

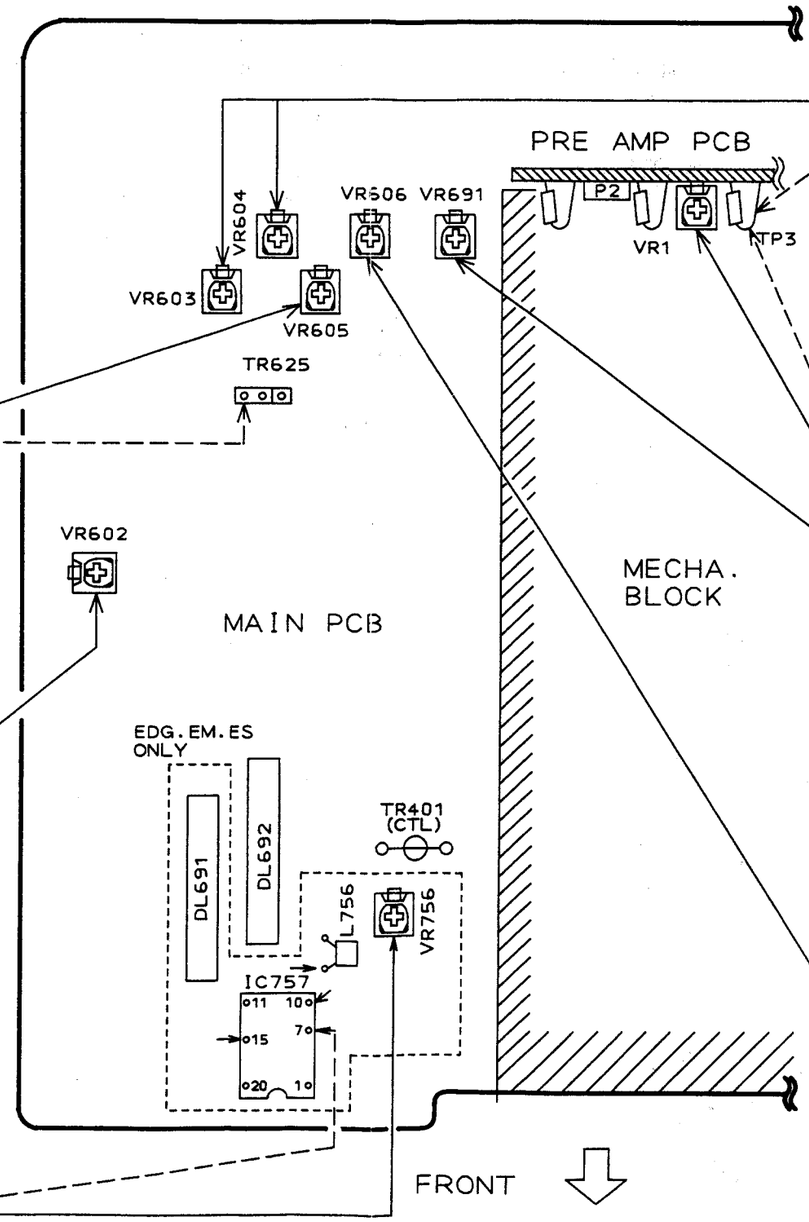
Precautionary items prior to adjustments
1. The colour bar generator output should be 1.0 Vp-p.
2. The video output terminal should be terminated with 75 ohms (connect dummy load or 75 ohms input TV).

The following test tape is required.

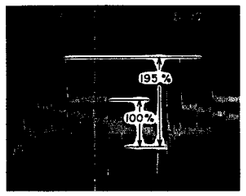
Test tape	Parts No.
TF-542CBS	AT-751365

STEP	ADJUSTMENT ITEM
1.	MODE and INPUT SIGNAL/TEST TAPE
2.	TEST POINT and ADJ part
3.	REMARKS (•) & RESULT (*)

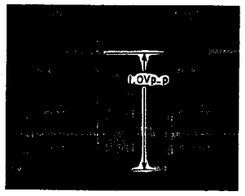
ADJ. part
Test point



2 WHITE CLIP
1. "E-E", PAL colour bar signal
2. TR625 (EMITTER) & VR605 (WHITE CLIP)
3. • Connect an oscilloscope to the emitter of TR625.
   * Adjust VR605 so that the white clip level is 195 % of the video level (the level from sync tip to white 100%).

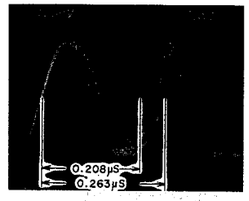


1 VIDEO E-E LEVEL
1. "E-E" (STOP mode), PAL colour bar signal
2. VIDEO OUT & VR602 (E-E LEVEL)
3. • Connect an oscilloscope to VIDEO OUT.
   * 1.0 Vp-p



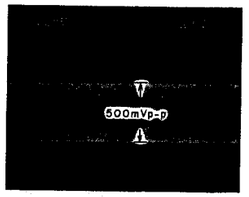
6 AFC FREQUENCY (EDG/EM/ES only)
1. "PB", test tape TF-542CBS
2. IC757 ⑦ pin & VR756
3. • Play back the test tape TF-542CBS.
   • Connect a frequency counter to the IC757 ⑦ pin and apply 5 V to the ⑮ pin (connect ⑩ pin or lead of the L756 to the ⑮ pin) while adjusting.
   * Adjust VR756 so that the frequency counter reads 15.74 ± 0.05 kHz.

3 CARRIER SET & DEVIATION
1. "REC", Stair step signal
2. TP3 (REC.I) & VR604 (CARRIER), VR603 (DEVIATION)
3. • Connect an oscilloscope to the TP3 on the PRE AMP PCB.
   * Adjust VR604 and VR603 alternately until the result is satisfactory.
   * VR604 (CARRIER) : 0.263 µs (3.8 MHz)
   * VR603 (DEVIATION) : 0.208 µs (4.8 MHz)



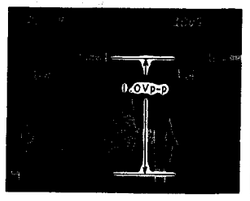
4 VIDEO REC CURRENT
1. "REC", PAL colour bar signal
2. TP3 (REC.I) & VR1 (REC-Y), VR691 (REC-CHROMA)
3. • Connect an oscilloscope to TP3 on the PRE AMP PCB.
   • Turn the VR1 on the PRE AMP PCB fully counter-clockwise.
   * Adjust VR691 on the MAIN PCB so that the chroma REC current is 60 mVp-p at the burst signal area (45 mVp-p for the VS-G215EK model).
   * Disconnect the input signal, then adjust VR1 so that the Y REC current is 500 mVp-p (380 mVp-p for the VS-G215EK model).

REC CHROMA



REC Y

5 VIDEO PB LEVEL
1. "REC" → "PB", PAL colour bar signal
2. VIDEO OUT & VR606 (PB LEVEL)
3. • Connect an oscilloscope to VIDEO OUT.
   • Make a recording on a blank tape, then play it back.
   * Adjust VR606 so that the PB level is 1.0 Vp-p.



VII. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list the Part No., Model No. and the description of earch part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List or Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

Ref. No.	Part. No.	Description
1	BH-T2023A320A	HEAD BASE BLOCK
2	HP-H2206A010A	HEAD R/P PR4-8FU C
3	ZS-477876	PAN20×03STL CMT
4	ZS-536488	BID20×08STL CMT
5	ZG-402895	SP CS ANGLE ADJUST

SP (Service Parts) Classification

This number corresponds with the individual parts index number in the figure.

b) PC Block

2. MAIN PC BOARD

Ref. No.	Part. No.	Description
IC1	EI-324536	IC HD14049BP
IC2	EI-336801	IC MB8841-564M
C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
C1B	EC-350949	C MMY V 223M 250DC [J]
C1C	EC-338397	C MMY V 223M 125AC [C,A]
X1	EI-318384	OSC X'TAL NC-18C

Symbols for primary destination
[A] : AAL (U.S.A) [S] : SAA (Australia)
[B] : BEAB (England) [U] : U/T (Universal Area)
[C] : CSA (Canada)
[E] : CEE (Europe) [V] : VDE (Germany)
[J] : JPN (Japan) [Y] : Custom

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

WARNING

⚠ (✱) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ (✱) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉDE L'APPAREIL, NE REMPLACER QUE DES PIÉCES RECOMMANDEES PAR LÉ FABRICANT.

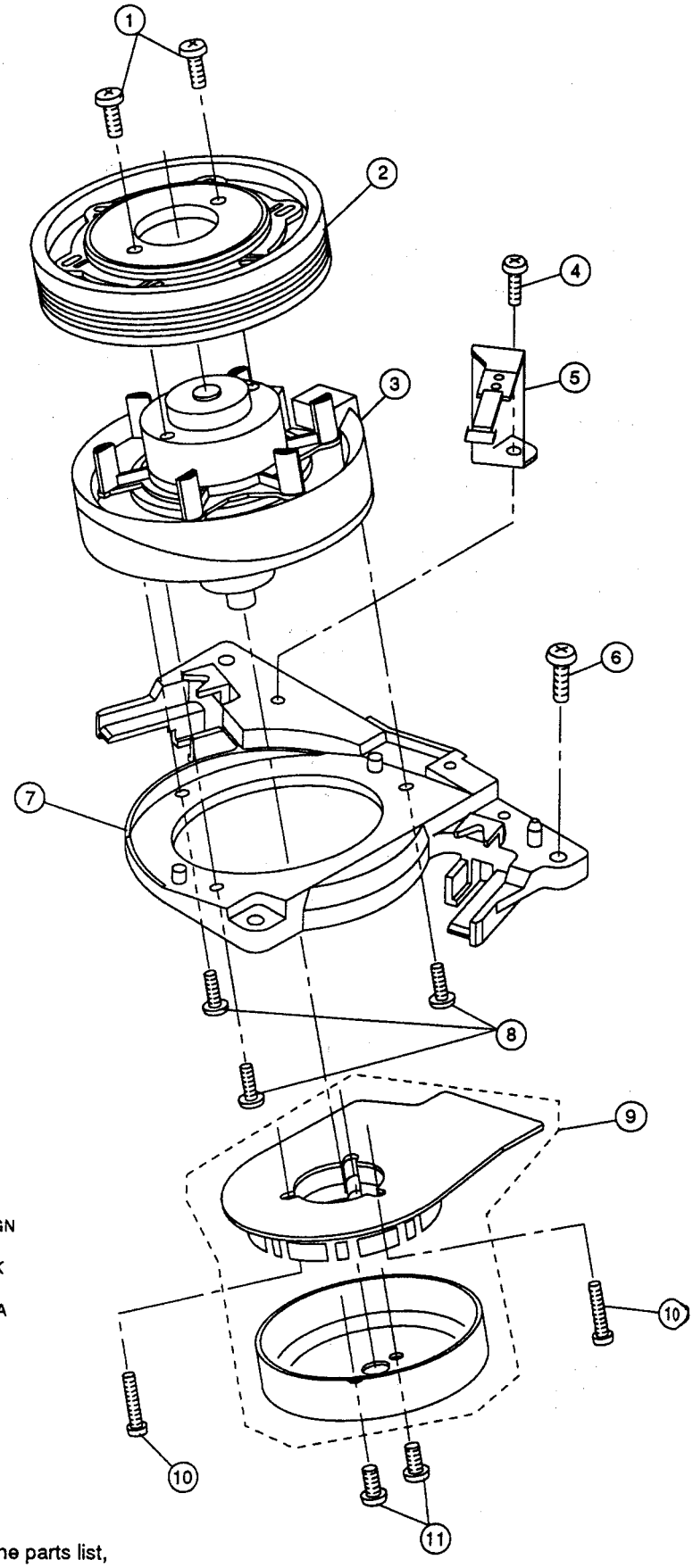
1. RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

Ref. No.	Part No.	Description
1	AV-416966M1	REMOCON RC-W100E [G204EA/ES]
2	AV-422041N	REMOCON RC-W152E [EM,G204EOH,G205EA/EDG/EO/EOH, G206EA]
3	AV-422037N	REMOCON RC-W552E [G211EOH]
4	AV-422036N	REMOCON RC-W552G [G212EOG]
5	AV-422040N	REMOCON RC-W562E [EK]
6	AV-422039N	REMOCON RC-W572E [G215EO/EOH]
7	AV-422038N	REMOCON RC-W572G [G217EOG]
8	BB-421843N00	MECHA DECK G204EA
9	BL-424913N00	ARM LOADING BLK G204EA
10	BL-420054N	ARM PINCH ROLLER PART
11	BM-421746N	MOTOR PART
12	BM-419269N	MOTOR SCV-0602A
13	BM-419324N1	MOTOR SDV-0302A
14	✱ BT-425397N	TRANS POW V1182 EK [EXCEPT EM]
15	✱ BT-422116N	TRANS POW V1184 EM [EM]
16	BV-424919N00	CASSETTE LOAD BLK G204EA
17	BV-424914N00	LEADER(S) BLK G204EA
18	BV-424915N00	LEADER(T) BLK G204EA
19	BV-V1182A410A	LOWER DRUM BLK G204EA
20	BV-425222J	RF CONVER. YAA21-1001G G/K EDG [EDG,G205EM]
21	BV-403410J	RF CONVERTER MDLK6B733A EK [ES,EK]
22	BV-403409J	RF CONVERTER MDLK6D755A EO [EO,EOG,EOH]
23	BV-387611J1	RF CONVERTER YAA21-0808G EV [G204EM]
24	BV-387610J1	RF CONVERTER YAA21-0809G EA [EA]
25	BV-V1182A420A	UPPER DRUM BLK G215EK [EK]
26	BV-V1123A420A	UPPER DRUM BLK X400EGN [EXCEPT EK]
27	BV-422132J	VIF UNIT AX EDG [EDG,G205EM]
28	BV-403236J1	VIF UNIT KX EA [EA]
29	BV-403238J1	VIF UNIT KX EK [EK]
30	BV-403239J1	VIF UNIT KX EM [G204EM]
31	BV-403241J1	VIF UNIT KX EOG [EO]
32	BV-403240J2	VIF UNIT KX EOH [EOH]
33	BV-403242J1	VIF UNIT KX ES [ES]
34	BV-416729J	VIF UNIT KX-TEK EOG [EOG]
35	EC-416655J	C DBL.LAYER T05 FM0H473Z 5.5DC [EXCEPT ES]
36	ED-390012J	D LED GL4800 INFRARED
37	ED-422251J	D LED GL528VTB INFRARED T05
38	ED-422243N	D SCHOT.AK03WK T05 [EM]
39	ED-418625J	D SCHOTTKY EK14LF-G1 S12
40	ED-418624J	D SCHOTTKY RK39LF-B2 S12
41	✱ ED-418976J	D SILICON EG01CW T05 1000/0.5A
42	ED-425207J	D SILICON ERA18-02 T26
43	ED-307572	D SILICON H 1SS131
44	✱ ED-511907	D SILICON 1N4002 100/1.0A
45	✱ ED-422125J	D SILICON 1N4006 T26 800/1.0A
46	✱ ED-396363J	D ZENER H HZS11B3 [EA,ES,EM,EDG,EK]
47	ED-425400J	D ZENER H HZS12A3L [EDG,EK]
48	ED-402215J	D ZENER H HZS15-1 [EOH,EOG]
49	ED-402181J	D ZENER H HZS3A1 [EO,EOH,EOG]
50	✱ ED-397233J	D ZENER H HZS5C3
51	ED-387919J	D ZENER H HZS6A1L
52	ED-425401J	D ZENER H HZS7A2L
53	ED-405247J	D ZENER H MTZJ2.7A T26
54	✱ ED-422420J	D ZENER H MTZJ20C T26
55	ED-400519J	D ZENER H MTZJ3.9A T26
56	ED-405604J	D ZENER H MTZJ4.3C T26
57	EE-412395J	TV TUNER ENV-578C9F1 EOH [EOH]
58	EE-416854J	TV TUNER TEKE1-042A EO [EDG,G205EM]
59	EE-416524J1	TV TUNER TEKE4-034B EOG [EOG]
60	EE-387607J1	TV TUNER TERB1-008B EK [EK]
61	EE-387604J3	TV TUNER TERE1-007D EOG [EO]
62	EE-387603J1	TV TUNER TERE1-019B EO [ES]
63	EE-419189J	TV TUNER VTSH6AZ01 EA [EA]
64	EE-405638J	TV TUNER VTSS6CZ EM [G204EM]
65	✱ EF-601964	FUSE SET T 250V 1.60A
66	EH-419265J	DL EFDHLA36A [ES,EM,EDG]
67	EH-416491J	DL EFDJLA13A
68	EH-368816	FILTER CE SAF38.0MZA70Z
69	EH-730625J	FILTER CE SAF38.9MZW70Z [EXCEPT EA,ES,EK]
70	EH-714627	FILTER CE SAW SAF38.9MW70Z [ES]
71	EH-714628	FILTER CE SAW SAF39.5MZ70Z [EK]
72	EH-373920	FILTER CE SFE5.5MB [EXCEPT ES,EK]
73	EH-373921	FILTER CE SFE6.0MB [ES,EK]
74	EH-412432J	FILTER CE SFSH6.5MDB 6.500MHZ
75	EH-368827	FILTER CE SFS5.5MD 5.500MHZ
76	EH-373918	FILTER CE TPS5.5MB
77	EH-729986J	FILTER CE TPS5.5MB2 [G204EM]
78	EH-368948	FILTER CE TPS5.5MW 5.5000MHZ [EXCEPT ES,EK,G204EM]
79	EH-373919	FILTER CE TPS6.0MB [ES,EK]
80	EH-376338	FILTER CE TPS6.5MB
81	EH-714626	FILTERCE SAW SAF36.9MZ70Z [EA]
82	EI-422151J	IC AN3558FBS
83	EI-366892	IC BA7025L [EM,EDG]
84	EI-425537J	IC LA6358NM
85	EI-414861J	IC LA7285
86	EI-403233J	IC LB1641
87	EI-394856J	IC LC8992
88	EI-389622J	IC L5631
89	EI-418647J	IC MC14066B [EXCEPT EOH(Y2)]
90	EI-422452J2	IC M37770M4H-168FP ABESYP3 [EA,EK,EO,EOH,EOG]
91	EI-422451J2	IC M37770M4H-171FP ABASYP3 [ES,EM,EDG]
92	EI-368809	IC M51496P
93	EI-414801J	IC M52063SP [ES,EM,EDG]

Ref. No.	Part No.	Description
94	✱ EI-418723J	IC NJM4558DX
95	✱ EI-416620J	IC NJM7809FA
		[EO,EOH,EOG]
96	EI-422090J	IC SAA5233P
97	EI-418699J	IC STV5716
98	EI-422128N	IC TA76431S T05
99	EI-310036	IC TC4066BP
100	EI-422145J	IC UPD16312GB-3B4
101	EI-416691J	IC XC61AC3002TH T05
		[EXCEPT ES]
102	EI-425667J	IC 24LC01B/SN
103	EI-368829	OSC CE CSB512P
104	EI-425240J	OSC X'TALAPS-1011A16.000MHZ
105	EI-422092J	OSC X'TALAPS1008 3RD27.000MHZ
106	EI-368825M	OSC X'TAL C-002RX 32.768KHZ
107	EI-422510J	OSC X'TAL HC-49/U 4433.619KHZ
108	EM-422142J	IND FL FV641G CHARACTER
109	✱ ER-408829J	R FUSE V T05 RF25SCVTP1/4WR11K
110	✱ ER-397385J	R FUSE V T05 RF25SCVTP1/4WR20K
111	✱ ER-418648J	R FUSE V T05 RF25SCVTP1/4WR24K
112	✱ ER-400729J	R FUSE V T05 RF25SCVTP1/4WR47K
113	✱ ER-410380J	R FUSE V T05 RF25SCVTP1/4WR91K
		[EO,EOH,EOG]
114	ES-422247J	SW MICRO MPU10181MLB0
		[EK,EO,EOH,EOG]
115	ES-419326J	SW MODE SELECT MMS00201ZMB0
116	ES-425239J	SW TACT EVQ-PBE-07K
117	ES-396610J	SW TACT SOR-122HS T05
118	ET-425638J	DETECTOR SBX1815-R2
119	✱ ET-422113J	PHOTO COUPLER PS2561-1-V
120	✱ ET-422464J	TR C.2SD2118 Q,R,S FPTLT16E
121	ET-422444J	TR CHIP DTC143ZK T146T08E
122	ET-724885J	TR CHIP RT1N141C
		[EO,EOG]
123	ET-421977J	TR CHIP UN2113 TXT08E
		[EDG,EK,EO,EOH,EOG]
124	ET-421989J	TR CHIP UN2210 R,S TXT08E
		[EOH,EOG]
125	ET-421990J	TR CHIP UN2211 TXT08E
126	ET-414836J	TR CHIP UN2213 TXT08E
		[EXCEPT ES]
127	ET-421993J	TR CHIP UN2215 R,S TXT08E
128	ET-370818	TR CHIP 2SA1235
129	ET-416932J	TR CHIP 2SB709A R,S TXT08E
		[EA,G204EM]
130	ET-725820J	TR CHIP 2SC2735J
131	ET-370819	TR CHIP 2SC3052
132	ET-416933J	TR CHIP 2SD601A R,S TXT08E
133	ET-415140J	TR DTA115TS T05
134	ET-373391	TR DTC143ZS
		[EK,EOG,G215EOH(Y1)]
135	ET-390010J	TR PHOTO PT4800
136	ET-390009J	TR PHOTO PT493F
137	ET-419707J	TR UN4110 R,S T05
138	ET-419710J	TR UN4113 T05
		[EXCEPT EOH(Y2)]
139	ET-422033J	TR UN4116 T05 R,S
		[EXCEPT ES]
140	ET-364040	TR UN421D
141	ET-422031J	TR UN4210 R,S T05
142	ET-421941J	TR UN4213 T05
		[EXCEPT EOH(Y2)]
143	ET-421944J	TR UN4215 R,S T05
144	ET-421945J	TR UN4216 R,S T05
		[EM,EDG,EO,EOH,EOG]
145	ET-353899	TR 2SA1317 S,T,U
146	✱ ET-404498J	TR 2SB1306 Q,R T05
147	✱ ET-422154J	TR 2SB1426 Q,R T05
148	ET-414816J	TR 2SC2668 Y T05
		[EXCEPT EOG]
149	ET-397160J	TR 2SC3330 R,S,T,U,V
		[EOG]
150	✱ ET-422118J	TR 2SC4304 O,Y
151	✱ ET-422129J	TR 2SD2132 U,V T05
152	✱ ET-422511J	TR 2SD2375 P
153	EW-421820J	CORD FFC BD P1.25 L=100 19P
154	EW-421818J	CORD FFC BD P1.25 L=110 14P
155	EW-421819J	CORD FFC BD P1.25 L=90 9P
156	✱ EX-412521J	THERMISTOR 911P83E101NH07 T05
157	HE-422168J	HEAD E HVFHF0032A
158	HR-416732J	HEAD COMBO HVMZA1161A
159	MB-420053N	BELT CAPSTAN
160	MI-420023N	ARM IDLER PART
161	MI-420038N	DISK CLUTCH PART
162	MI-420037N	DISK COUPLING
163	ML-420033N	ARM COUPLING
164	ML-420170N	ARM LID OPENER
165	ML-420097N	ARM LOADING BRAKE
166	ML-420068N	ARM REVIEW PART
167	ML-420102N	ARM T.U BRAKE
168	ML-420006N	ARM TENSION PART
169	ML-420126N	CAPSTAN BRAKE PART
170	ML-420099N	LEVER M BRAKE
171	ML-420061N	LEVER PINCH
172	ML-420133N	LEVER REC-S
173	ML-420416N	LEVER TENSION(1)PART
174	ML-420086N	MAIN BRAKE(S)PART
175	ML-420089N	MAIN BRAKE(T)PART
176	ML-420092N	REVIEW BRAKE PART
177	ML-420110N	SLIDER PINCH
178	ML-420100N	SLIDER TRIGGER
179	MR-420109N	HOLDER THRUST WORM
180	MR-420106N	PULLEY TRIGGER
181	MR-420022N	ROLLER IMPEDANCE
182	MT-424632N	DISK(2) PART
183	MZ-420064N	GEAR CAM HELICAL
184	MZ-420122N	GEAR CAM MAIN
185	MZ-420066N	GEAR CAM PINCH
186	MZ-420035N	GEAR COUPLING
187	MZ-420124N	GEAR FRONT LOADING
188	MZ-420067N	GEAR PINCH
189	MZ-424917N00	GEAR TOGGLE (S) BLK G204EA
190	MZ-424916N00	GEAR TOGGLE (T) BLK G204EA
191	MZ-420123N	GEAR WORM WHEEL
192	MZ-420132N	PRISM LED
193	MZ-420016N	TENSION BAND PART
194	ZG-420036N	SP PUSH COUPLING
195	ZG-420105N	SP TRIGGER

HEAD DRUM BLOCK

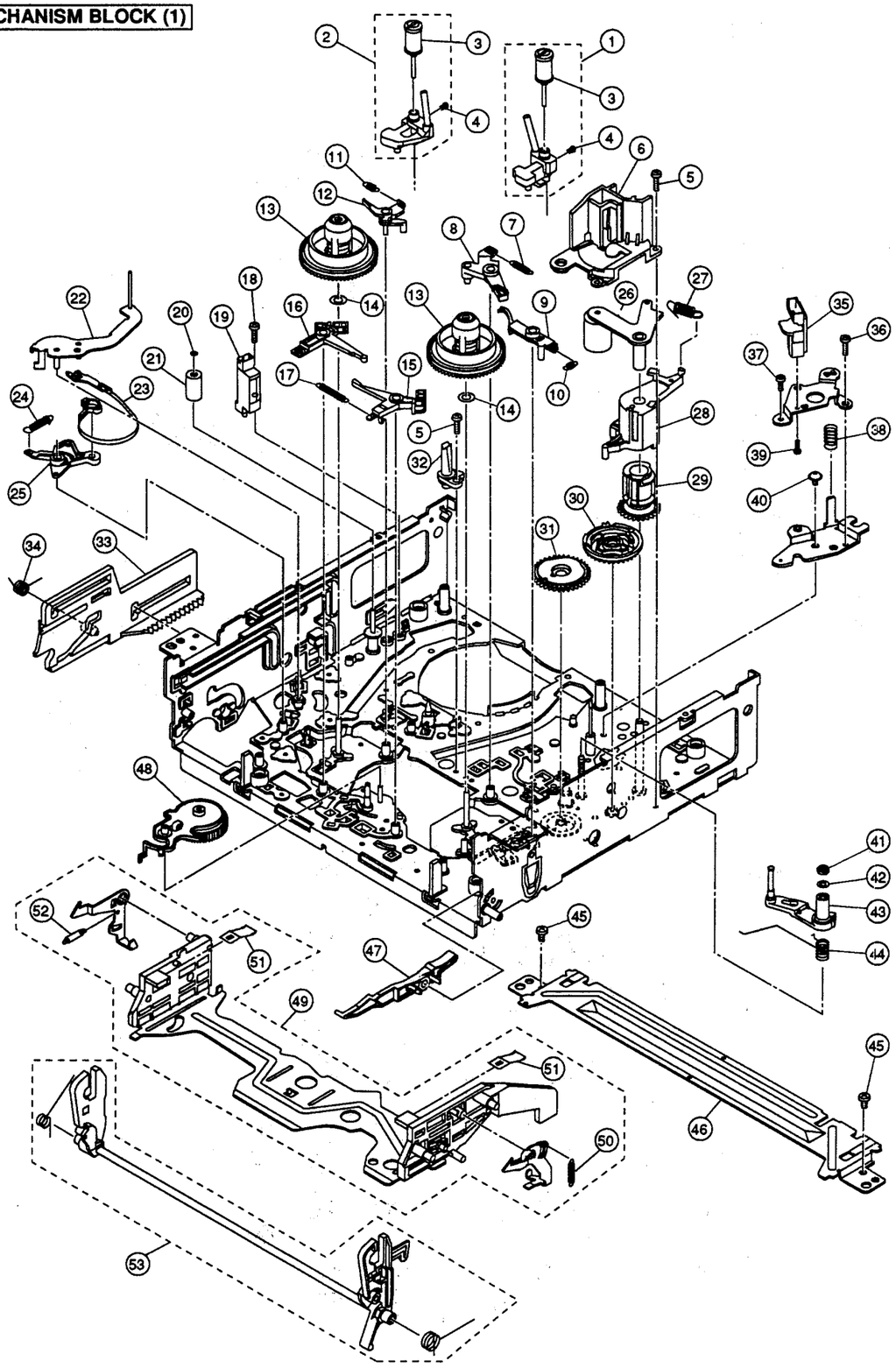


2. HEAD DRUM BLOCK

Ref. No.	Part No.	Description
1	ZS-321298	BID30X08STL CMT
2-A	BV-V1123A420A	UPPER DRUM BLK X400EGN [EXCEPT EK]
2-B	BV-V1182A420A	UPPER DRUM BLK G215EK [EK]
3	BV-V1182A410A	LOWER DRUM BLK G204EA
4	ZS-358936	ST BID30X06STL CMT
5	VT-401282J	EARTH BRUSH PART AG
6	ZS-336714	ST BID30X12STL CMT
7	MA-420191J1	CHASSIS DRUM
8	ZS-563444	BID26X08STL CMT
9	BM-419324N1	MOTOR SDV-0302A
10	ZS-467796	PAN26X12STL CMT
11	ZS-425694J	PAN30X06STL CMT S-GRIP

NOTE :
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

MACHANISM BLOCK (1)



3. MACHANISM BLOCK (1)

Ref. No.	Part No.	Description
1	BV-424915N00	LEADER(T) BLK G204EA
2	BV-424914N00	LEADER(S) BLK G204EA
3	VT-387394J1	GUIDE ROLLER D8 PART
4	ZS-418616J	PAN20X2.8STL CMT PS1 LEADER
5	ZS-383761J	ST BID26X06STL CMT
6	MZ-420065N	HOLDER PINCH
7	ZG-420095N	SP PULL REVIEW BRAKE
8	ML-420092N	REVIEW BRAKE PART
9	ML-420102N	ARM T.U BRAKE
10	ZG-420103N	SP PULL T.U BRAKE
11	ZG-420098N	SP PULL LOADING BRAKE
12	ML-420097N	ARM LOADING BRAKE
13	MT-424632N	DISK(2) PART
14	ZW-424667N	REEL WASHER (SG)
15	ML-420089N	MAIN BRAKE(T)PART
16	ML-420086N	MAIN BRAKE(S)PART
17	ZG-420091N	SP PULL MAIN BRAKE
18	ZS-403887J	PT BID26X12STL CMT
19	HE-422168J	HEAD E HVFHF0032A
20	ZW-395919J	SLIT W16X035X025 PSL
21	MR-420022N	ROLLER IMPEDANCE
22	ML-420006N	ARM TENSION PART
23	MZ-420016N	TENSION BAND PART
24	ZG-420015N	SP PULL TENSION(1)
25	ML-420416N	LEVER TENSION(1)PART
26	BL-420054N	ARM PINCH ROLLER PART
27	ZG-420062N	SP PULL PINCH
28	ML-420061N	LEVER PINCH
29	MZ-420064N	GEAR CAM HELICAL
30	MZ-420066N	GEAR CAM PINCH
31	MZ-420067N	GEAR PINCH
32	MZ-420132N	PRISM LED
33	ML-420168N	SLIDER FRONT LOADING
34	ZG-420169N	SP TORSION SLIDER
35	HR-416732J	HEAD COMBO HVMZA1161A
36	ZS-550708	PAN26X08STL NI3
37	ZS-422170J	PAN26X07STL CMT CP
38	ZG-420075N	SP PUSH A/C
39	ZS-418480J	PAN20X2.2STL BZN PS1
40	ZS-362533	ST PAN30X05STL CMT C080
41	ZW-350839	N30 NYLON
42	ZW-324417	PW31X060X050PSL
43	ML-420068N	ARM REVIEW PART
44	ZG-420071N	SP TORSION REVIEW
45	ZS-358936	ST BID30X06STL CMT
46	MZ-420172N	PLATE UPPER
47	ML-420170N	ARM LID OPENER
48	MI-420023N	ARM IDLER PART
49	BV-424919N00	CASSETTE LOAD BLK G204EA
50	ZG-420167N	SP PULL DUMPER(T)
51	ZG-420162N	SP PLATE UPPER
52	ZG-420166N	SP PULL DUMPER(S)
53	BL-424913N00	ARM LOADING BLK G204EA
55	BB-421843N00	MECHA DECK G204EA

NOTE :

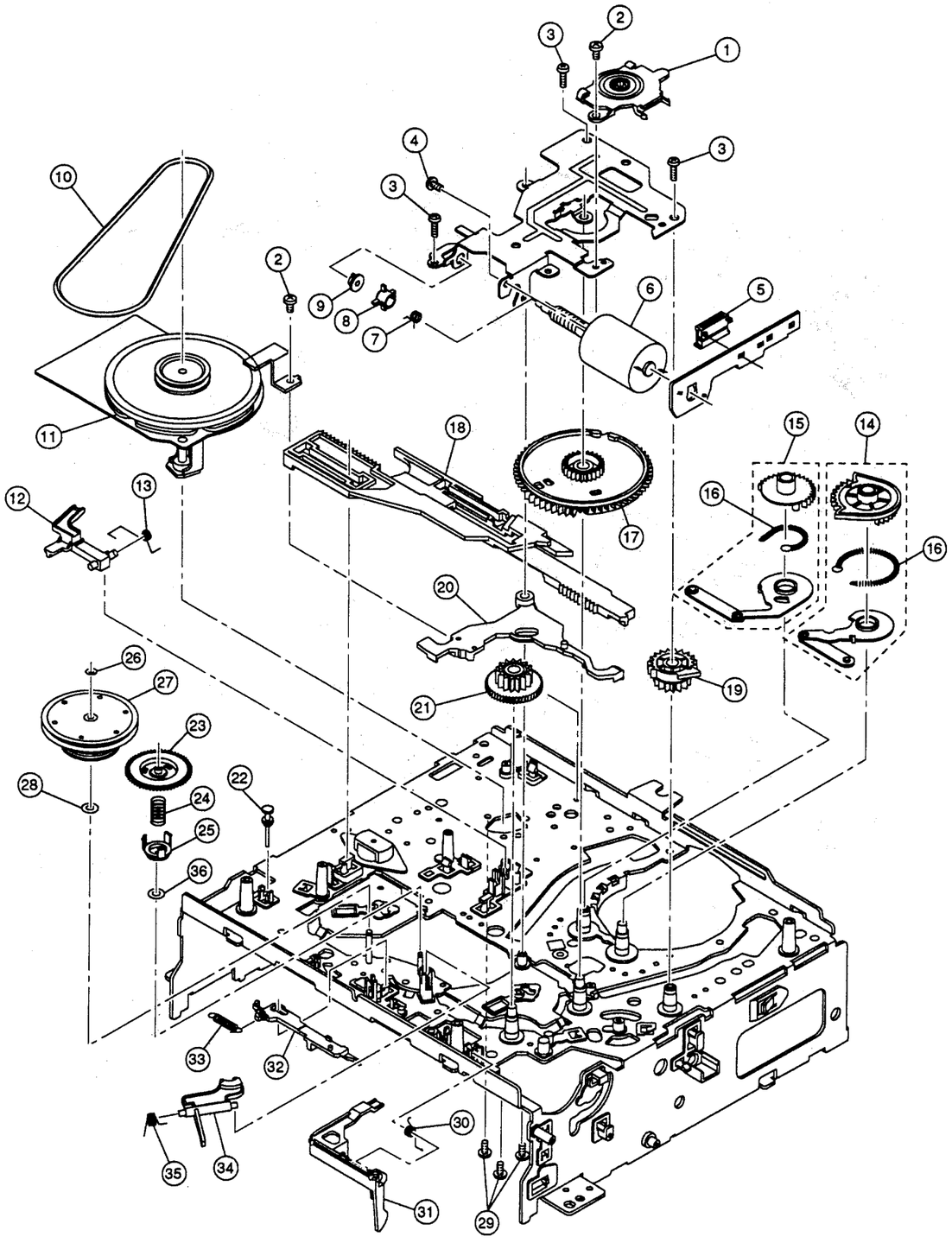
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

4. MACHANISM BLOCK (2)

Ref. No.	Part No.	Description
1	ES-419326J	SW MODE SELECT MMS00201ZMB0
2	ZS-358936	ST BID30X06STL CMT
3	ZS-389950J	PT BID26X10STL CMT
4	ZS-425981	BID30X03STL CMT
5	EJ-422169J	SOCKET TKC-M07X-A1 7P
6	BM-421746N	MOTOR PART
7	ZG-420105N	SP TRIGGER
8	MR-420106N	PULLEY TRIGGER
9	MR-420109N	HOLDER THRUST WORM
10	MB-420053N	BELT CAPSTAN
11	BM-419269N	MOTOR SCV-0602A
12	ML-420126N	CAPSTAN BRAKE PART
13	ZG-420129N	SP TORSION C.B
14	MZ-424917N00	GEAR TOGGLE (S) BLK G204EA
15	MZ-424916N00	GEAR TOGGLE (T) BLK G204EA
16	ZG-420117N	SP PULL TOGGLE
17	MZ-420122N	GEAR CAM MAIN
18	ML-420110N	SLIDER PINCH
19	MZ-420124N	GEAR FRONT LOADING
20	ML-420099N	LEVER M BRAKE
21	MZ-420123N	GEAR WORM WHEEL
22	MZ-420135N	SLIDE S-SW
23	MZ-420035N	GEAR COUPLING
24	ZG-420036N	SP PUSH COUPLING
25	MI-420037N	DISK COUPLING
26	ZW-418816J	SLIT W21X050X050PSL
27	MI-420038N	DISK CLUTCH PART
28	ZW-389923J	PW26X060X050PSL
29	ZS-432843	PAN26X04STL CMT
30	ZG-420134N	SP TORSION REC-S
31	ML-420133N	LEVER REC-S
32	ML-420100N	SLIDER TRIGGER
33	ZG-420101N	SP PULL TRIGGER
34	ML-420033N	ARM COUPLING
35	ZG-420034N	SP TORSION COUPLING
36	ZW-321317	PW21X040X050PSL

NOTE :
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

MACHANISM BLOCK (2)



5. P.C. BOARD BLOCK

Ref. No.	Part No.	Description
1-A	BA-V1182A600A	PC (#) MAIN BLK G204EA [EA]
1-B	BA-V1182A600B	PC (#) MAIN BLK G204ES [ES]
1-C	BA-V1182A600C	PC (#) MAIN BLK G204EM [EM]
1-D	BA-V1182A600D	PC (#) MAIN BLK G205EDG [EDG]
1-E	BA-V1182Q600E	FR PC (#) MAIN BLK G215EK/FR [EK]
1-F	BA-V1182Q600F	FR PC (#) MAIN BLK G215EO/FR [EO]
1-G	BA-V1182A600G	PC (#) MAIN BLK G205EOH(E) [G204EOH(Y1), G205EOH(E)/(Y1), G211EOH(Y1), G215EOH(E)]
1-H	BA-V1182Q600H	FR PC (#) MAIN BLK G205EOH(Y2)/FR [EOH(Y2)]
1-I	BA-V1182Q600J	FR PC (#) MAIN BLK G215EOH(Y1)/FR [G215EOH(Y1)]
1-J	BA-V1182Q600K	FR PC (#) MAIN BLK G212EOG/FR [EOG]
1-K	BA-V1182A600L	PC (#) MAIN BLK G205EM [G205EM]
2-A	BA-V1182A610A	PC PRE 2 BLK G204EA [EXCEPT EK]
2-B	BA-V1182A610B	PC PRE 2 BLK G215EK [EK]
3-A	BA-V1184S500A	SG PC POWER BLK G305EA [EXCEPT EOG EM]
3-B	BA-V1184S500C	SG PC POWER BLK G212EOG [EOG]
3-C	BA-V1184S500D	SG PC POWER BLK G204EM [EM]
4	BA-V1184Q750A	FR PC (#) DEC BLK G205EOH(Y2)/FR [EOH(Y2)]

PC (#) MAIN BLK CONSISTS OF FOLLOWING P.C. BOARDS.

- MAIN P.C. BOARD
- OPERATION P.C. BOARD
- TR (A) P.C. BOARD
- TR (B) P.C. BOARD

PC (#) DEC BLK CONSISTS OF FOLLOWING P.C. BOARDS.

- DECODER (A) P.C. BOARD
- DECODER (B) P.C. BOARD

6. MAIN P.C. BOARD

Ref. No.	Part No.	Description
C401	EC-416655J	C DBL.LAYER T05 FM0H473Z 5.5DC [EXCEPT ES]
D1	ED-425400J	D ZENER H HZS12A3L [EDG,EK]
D10	ED-307572	D SILICON H 1SS131
D11	ED-307572	D SILICON H 1SS131
D20	ED-307572	D SILICON H 1SS131 [EXCEPT EK]
D21	ED-307572	D SILICON H 1SS131 [EXCEPT EK]
D30	ED-387919J	D ZENER H HZS6A1L
D31	ED-307572	D SILICON H 1SS131 [EOH,EOG]
D32	ED-402215J	D ZENER H HZS15-1 [EOH,EOG]
D60	ED-307572	D SILICON H 1SS131 [EO,EOG]
D61	ED-307572	D SILICON H 1SS131 [EO,EOG]
D201	✱ ED-396363J	D ZENER H HZS11B3 [EA,ES,EM,EDG,EK]
D202	✱ ED-397233J	D ZENER H HZS5C3
D203	ED-307572	D SILICON H 1SS131
D204	ED-307572	D SILICON H 1SS131 [EXCEPT ES]
D205	ED-400519J	D ZENER H MTZJ3.9A T26
D211	ED-425400J	D ZENER H HZS12A3L
D212	ED-307572	D SILICON H 1SS131
D213	ED-307572	D SILICON H 1SS131
D214	ED-405247J	D ZENER H MTZJ2.7A T26
D322	ED-307572	D SILICON H 1SS131
D330	ED-307572	D SILICON H 1SS131
D340	ED-402181J	D ZENER H HZS3A1 [EO,EOH,EOG]
D401	ED-422251J	D LED GL528VTB INFRARED T05
D402	ED-390012J	D LED GL4800 INFRARED
D403	ED-390012J	D LED GL4800 INFRARED
D404	ED-425401J	D ZENER H HZS7A2L
D407	ED-307572	D SILICON H 1SS131 [EXCEPT ES]
D413	ED-307572	D SILICON H 1SS131
D414	ED-307572	D SILICON H 1SS131
D415	✱ ED-511907	D SILICON 1N4002 100/1.0A
D416	✱ ED-511907	D SILICON 1N4002 100/1.0A
D417	✱ ED-511907	D SILICON 1N4002 100/1.0A
D418	✱ ED-511907	D SILICON 1N4002 100/1.0A
D419	ED-307572	D SILICON H 1SS131
D420	ED-405604J	D ZENER H MTZJ4.3C T26
D421	ED-307572	D SILICON H 1SS131 [EA,EO,G204EOH,G205EOH,G211EOH, G215EOH(E)/(Y2)]
D602	ED-307572	D SILICON H 1SS131
D690	ED-307572	D SILICON H 1SS131
D691	ED-307572	D SILICON H 1SS131
D692	ED-307572	D SILICON H 1SS131 [ES,EM,EDG]
D693	ED-307572	D SILICON H 1SS131 [EM,EDG]
DL691	EH-419265J	DL EFDHLA36A [ES,EM,EDG]
DL692	EH-416491J	DL EFDJLA13A
FL330	EO-422331J	COIL OSC 1 V1182KN 70.0KHZ
FR201	✱ ER-397385J	R FUSE V T05 RF25SCVTP1/4WR20K
FR202	✱ ER-410380J	R FUSE V T05 RF25SCVTP1/4WR91K [EO,EOH,EOG]
FR204	✱ ER-408829J	R FUSE V T05 RF25SCVTP1/4WR11K
FR401	✱ ER-400729J	R FUSE V T05 RF25SCVTP1/4WR47K
FR402	✱ ER-418648J	R FUSE V T05 RF25SCVTP1/4WR24K
IC1	EI-389622J	IC L5631
IC102	EI-418647J	IC MC14066B [EXCEPT EOH(Y2)]
IC201	✱ EI-418723J	IC NJM4558DX
IC203	✱ EI-416620J	IC NJM7809FA [EO,EOH,EOG]
IC401-A	EI-422452J2	IC M37770M4H-168FP ABESYP3 [EA,EK,EO,EOH,EOG]

Ref. No.	Part No.	Description
IC401-B	EI-422451J2	IC M37770M4H-171FP ABASYP3 [ES,EM,EDG]
IC402	EI-425537J	IC LA6358NM
IC403	EI-403233J	IC LB1641
IC406	EI-416691J	IC XC61AC3002TH T05 [EXCEPT ES]
IC407	EI-425667J	IC 24LC01B/SN
IC601	EI-394856J	IC LC8992
IC602	EI-422151J	IC AN3558FBS
IC741	EI-366892	IC BA7025L [EM,EDG]
IC757	EI-414801J	IC M52063SP [ES,EM,EDG]
IF1-A	BV-403236J1	VIF UNIT KX EA [EA]
IF1-B	BV-403242J1	VIF UNIT KX ES [ES]
IF1-C	BV-403239J1	VIF UNIT KX EM [G204EM]
IF1-D	BV-422132J	VIF UNIT AX EDG [EDG,G205EM]
IF1-E	BV-403238J1	VIF UNIT KX EK [EK]
IF1-F	BV-403241J1	VIF UNIT KX EOG [EO]
IF1-G	BV-403240J2	VIF UNIT KX EOH [EOH]
IF1-H	BV-416729J	VIF UNIT KX-TEK EOG [EOG]
L70-A	EO-373260	COIL FIX 1 LAP02 F05 1R0K [EA]
L70-B	EO-390998J	COIL FIX 1 LAP02 F05 R68K [EK,G204EM]
L102	EO-345881	COIL FIX 1 EL0606SKI 101J [EXCEPT EOH(Y2)]
L105	EO-345881	COIL FIX 1 EL0606SKI 101J [EXCEPT EOH(Y2)]
L201	✱ EO-422134J	COIL FIX 2 PC7-330K 330K
L202	✱ EO-422134J	COIL FIX 2 PC7-330K 330K
L330	EO-390716J	COIL FIX 1 LHL06TB T05 272J
L401	EO-381189J	COIL FIX 1 EL0405SKI 100K
L402	EO-381189J	COIL FIX 1 EL0405SKI 100K
L403	EO-392660J	COIL FIX 1 EL0405SKI 220K
L601	EO-410100J	COIL FIX 1 SPT0203SA T26 560J
L602	EO-414616J	COIL FIX 1 LAP02TA T26 270J
L603	EO-381193J	COIL FIX 1 EL0405SKI 271K
L604	EO-410100J	COIL FIX 1 SPT0203SA T26 560J
L605	EO-403270J	COIL FIX 1 EL0405RA T05 101J
L606	EO-381195J	COIL FIX 1 EL0405SKI 331K
L607	EO-410090J	COIL FIX 1 SPT0203SA T26 8R2J
L608-A	EO-408836J	COIL FIX 1 EL0405RA T05 181J [EA,ES,EK]
L608-B	EO-408837J	COIL FIX 1 EL0405RA T05 151J [EM,EDG,EO,EOH,EOG]
L609	EO-410101J	COIL FIX 1 SPT0203SA T26 680J
L610	EO-403270J	COIL FIX 1 EL0405RA T05 101J
L611	EO-414622J	COIL FIX 1 EL0607RA T05 101K
L612	EO-410099J	COIL FIX 1 SPT0203SA T26 470J
L614	EO-410089J	COIL FIX 1 SPT0203SA T26 6R8J
L615	EO-410103J	COIL FIX 1 SPT0203SA T26 151J
L616	EO-410094J	COIL FIX 1 SPT0203SA T26 180J
L691	EO-410104J	COIL FIX 1 SPT0203SA T26 181J
L692	EO-410090J	COIL FIX 1 SPT0203SA T26 8R2J
L693	EO-403270J	COIL FIX 1 EL0405RA T05 101J
L694	EO-418521J	COIL FIX 1 LAP02TA T26 121J
L695	EO-410093J	COIL FIX 1 SPT0203SA T26 150J [ES,EM,EDG]
L696	EO-410093J	COIL FIX 1 SPT0203SA T26 150J [ES,EM,EDG]
L697	EO-410093J	COIL FIX 1 SPT0203SA T26 150J
L698	EO-410097J	COIL FIX 1 SPT0203SA T26 330J
L741	EO-368129	COIL FIX 1 TL-8 153J [EM,EDG]
L756	EO-403270J	COIL FIX 1 EL0405RA T05 101J [ES,EM,EDG]
L760	EO-410102J	COIL FIX 1 SPT0203SA T26 820J
MD1-A	BV-387610J1	RF CONVERTER YAA21-0809G EA [EA]
MD1-B	BV-403410J	RF CONVERTER MDLK6B733A EK [ES,EK]
MD1-C	BV-387611J1	RF CONVERTER YAA21-0808G EV [G204EM]
MD1-D	BV-425222J	RF CONVER. YAA21-1001G G/K EDG [EDG,G205EM]
MD1-E	BV-403409J	RF CONVERTER MDLK6D755A EO [EO,EOG,EOH]
P102	EJ-422096J	SOCKET HLEM14S-1 14P [EOH(Y2)]
P301	EJ-418763J	SOCKET HLEM19S-1 19P
P401	EJ-422175J	PLUG TRC-X12P-A2 12P
P402	EJ-422176J	PLUG TKC-M07P-B1 7P
P403	EJ-422178J	PLUG TKC-G08P-A1 8P
P601	EJ-388344J	SOCKET HLEM9S-1 9P
PJ101	EJ-387614J	PIN J T6353-ABCB YL BK 4P [EA,ES,EM]
PJ102	EJ-387613J	SOCKET M1812 21P [EDG,EK,EO,EOG,EOH(E)/(Y1)]
SF741	EH-366894	FILTER CE SFE-4.16MB 4.16MHZ [EM,EDG]
SW401	ES-422247J	SW MICRO MPU10181MLB0 [EK,EO,EOH,EOG]
SW402	ES-422247J	SW MICRO MPU10181MLB0
TH201	✱ EX-412521J	THERMISTOR 911P83E101NH07 T05
TR1	ET-416932J	TR CHIP 2SB709A R,S TXT08E [EA,G204EM]
TR2	ET-414836J	TR CHIP UN2213 TXT08E [EXCEPT ES]
TR3	ET-421977J	TR CHIP UN2113 TXT08E [EDG,EK,EO,EOH,EOG]
TR10-A	ET-414816J	TR 2SC2668 Y T05 [EXCEPT EOG]
TR10-B	ET-397160J	TR 2SC3330 R,S,T,U,V [EOG]
TR11	ET-353899	TR 2SA1317 S,T,U
TR20	ET-416932J	TR CHIP 2SB709A R,S TXT08E [EXCEPT EK]
TR21	ET-416932J	TR CHIP 2SB709A R,S TXT08E [EXCEPT EK]
TR22	ET-416932J	TR CHIP 2SB709A R,S TXT08E [EXCEPT EK]
TR23	ET-414836J	TR CHIP UN2213 TXT08E [EXCEPT EK]
TR24	ET-414836J	TR CHIP UN2213 TXT08E [EXCEPT EK]
TR30	ET-416932J	TR CHIP 2SB709A R,S TXT08E [EXCEPT EOH,EOG]
TR31	ET-421990J	TR CHIP UN2211 TXT08E
TR32	ET-416933J	TR CHIP 2SD601A R,S TXT08E
TR33	ET-416932J	TR CHIP 2SB709A R,S TXT08E
TR34	ET-416933J	TR CHIP 2SD601A R,S TXT08E
TR35	ET-416933J	TR CHIP 2SD601A R,S TXT08E
TR36	ET-421989J	TR CHIP UN2210 R,S TXT08E [EOH,EOG]
TR37	ET-416933J	TR CHIP 2SD601A R,S TXT08E [EOH,EOG]
TR50	ET-416932J	TR CHIP 2SB709A R,S TXT08E
TR102	ET-353899	TR 2SA1317 S,T,U [EXCEPT EOH(Y2)]
TR104	ET-397160J	TR 2SC3330 R,S,T,U,V
TR106	ET-397160J	TR 2SC3330 R,S,T,U,V [EXCEPT EOH(Y2)]
TR107	ET-397160J	TR 2SC3330 R,S,T,U,V [EXCEPT EOH(Y2)]
TR108	ET-419710J	TR UN4113 T05 [EXCEPT EOH(Y2)]
TR109	ET-421941J	TR UN4213 T05 [EXCEPT EOH(Y2)]
TR111	ET-353899	TR 2SA1317 S,T,U [EOH(Y2)]
TR170	ET-421941J	TR UN4213 T05
TR171	ET-353899	TR 2SA1317 S,T,U
TR203	✱ ET-422464J	TR C.2SD2118 Q,R,S FPTLT16E
TR210	✱ ET-422154J	TR 2SB1426 Q,R T05
TR211	✱ ET-404498J	TR 2SB1306 Q,R T05
TR212	ET-373391	TR DTC143ZS [EK,EOG,G215EOH(Y1)]

Ref. No.	Part No.	Description
TR213	ET-419707J	TR UN4110 R,S T05
TR214	ET-373391	TR DTC143ZS
TR215	ET-422033J	TR UN4116 T05 R,S [EXCEPT ES]
TR216	ET-415140J	TR DTA115TS T05
TR217	ET-422031J	TR UN4210 R,S T05
TR218	ET-422444J	TR CHIP DTC143ZK T146T08E
TR330	ET-397160J	TR 2SC3330 R,S,T,U,V
TR331	ET-397160J	TR 2SC3330 R,S,T,U,V
TR332	ET-421993J	TR CHIP UN2215 R,S TXT08E
TR401	ET-390009J	TR PHOTO PT493F
TR403	ET-421941J	TR UN4213 T05
TR404	ET-353899	TR 2SA1317 S,T,U
TR405	ET-390010J	TR PHOTO PT4800
TR406	ET-390009J	TR PHOTO PT493F
TR407	ET-390010J	TR PHOTO PT4800
TR409	ET-353899	TR 2SA1317 S,T,U
TR410	ET-421944J	TR UN4215 R,S T05
TR413	ET-397160J	TR 2SC3330 R,S,T,U,V
TR414	ET-421977J	TR CHIP UN2113 TXT08E
TR416	ET-421977J	TR CHIP UN2113 TXT08E
TR417	ET-422154J	TR 2SB1426 Q,R T05
TR418	ET-421990J	TR CHIP UN2211 TXT08E
TR419	ET-421977J	TR CHIP UN2113 TXT08E
TR420	ET-414836J	TR CHIP UN2213 TXT08E
TR601	ET-397160J	TR 2SC3330 R,S,T,U,V
TR602	ET-397160J	TR 2SC3330 R,S,T,U,V
TR603	ET-422031J	TR UN4210 R,S T05 [ES,EM,EDG]
TR604	ET-421941J	TR UN4213 T05 [ES,EM,EDG]
TR605	ET-421941J	TR UN4213 T05 [EK]
TR606	ET-364040	TR UN421D
TR607	ET-421944J	TR UN4215 R,S T05
TR608	ET-421941J	TR UN4213 T05 [EM,EDG,EO,EOH,EOG]
TR609	ET-397160J	TR 2SC3330 R,S,T,U,V
TR610	ET-353899	TR 2SA1317 S,T,U
TR611	ET-353899	TR 2SA1317 S,T,U
TR612	ET-353899	TR 2SA1317 S,T,U
TR615	ET-397160J	TR 2SC3330 R,S,T,U,V
TR616	ET-364040	TR UN421D
TR617	ET-397160J	TR 2SC3330 R,S,T,U,V
TR618	ET-421945J	TR UN4216 R,S T05 [EM,EDG,EO,EOH,EOG]
TR625	ET-421945J	TR UN4216 R,S T05
TR626	ET-421941J	TR UN4213 T05
TR628	ET-421941J	TR UN4213 T05
TR629	ET-421941J	TR UN4213 T05 [EK]
TR631	ET-421941J	TR UN4213 T05
TR670	ET-397160J	TR 2SC3330 R,S,T,U,V [ES,EM,EDG]
TR671	ET-397160J	TR 2SC3330 R,S,T,U,V [ES,EM,EDG]
TR691	ET-397160J	TR 2SC3330 R,S,T,U,V
TR693	ET-397160J	TR 2SC3330 R,S,T,U,V
TR695	ET-419710J	TR UN4113 T05 [EM,EDG,EO,EOH,EOG]
TR696	ET-421941J	TR UN4213 T05 [EM,EDG,EO,EOH,EOG]
TR697	ET-353899	TR 2SA1317 S,T,U
TR699	ET-421941J	TR UN4213 T05 [ES,EM,EDG]
TR742	ET-397160J	TR 2SC3330 R,S,T,U,V [EM,EDG]
TR799	ET-397160J	TR 2SC3330 R,S,T,U,V
TU1-A	EE-419189J	TV TUNER VTSH6AZ01 EA [EA]
TU1-B	EE-387603J1	TV TUNER TERE1-019B EO [ES]
TU1-C	EE-405638J	TV TUNER VTSS6CZ EM [G204EM]
TU1-D	EE-416854J	TV TUNER TEKE1-042A EO [EDG,G205EM]
TU1-E	EE-387607J1	TV TUNER TERB1-008B EK [EK]
TU1-F	EE-387604J3	TV TUNER TERE1-007D EOG [EO]
TU1-G	EE-412395J	TV TUNER ENV-578C9F1 EOH [EOH]
TU1-H	EE-416524J1	TV TUNER TEKE4-034B EOG [EOG]
VR602	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W223
VR603	EV-389489J	R S-FIX H T05EVNDXAA03 0.1W472
VR604	EV-389489J	R S-FIX H T05EVNDXAA03 0.1W472
VR605	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
VR606	EV-389478J	R S-FIX H T05EVNDXAA03 0.1W153
VR691	EV-397433J	R S-FIX H T05EVNDXAA03 0.1W152
VR756	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103 [ES,EM,EDG]
X401	EI-425240J	OSC X'TAL APS-1011A 16.000MHZ
X403	EI-368825M	OSC X'TAL C-002RX 32.768KHZ
X601	EI-422510J	OSC X'TAL HC-49/U 4433.619KHZ
1	SZ-420137J	HOLDER S/E SENSOR
2	SZ-420136J	HOLDER PHOTO SENSOR
3	SZ-423208J	HOLDER LED

7. OPERATION P.C. BOARD

Ref. No.	Part No.	Description
D801	ED-307572	D SILICON H 1SS131
D802	ED-307572	D SILICON H 1SS131
D803	ED-307572	D SILICON H 1SS131
D804	ED-307572	D SILICON H 1SS131
D805	ED-307572	D SILICON H 1SS131
D806	ED-422161J	D ZENER H HZS3B3 T26
FL801	EM-422142J	IND FL FV641G CHARACTER
IC801	EI-422145J	IC UPD16312GB-3B4
L801	EO-392660J	COIL FIX 1 EL0405SKI 220K
P801	EJ-422172J	SOCKET TRC-X12X-A2 12P
PH801	ET-425638J	DETECTOR SBX1815-R2
SW801	ES-425239J	SW TACT EVQ-PBE-07K
SW802	ES-396610J	SW TACT SOR-122HS T05
SW803	ES-396610J	SW TACT SOR-122HS T05
SW804	ES-396610J	SW TACT SOR-122HS T05
SW805	ES-396610J	SW TACT SOR-122HS T05
SW806	ES-396610J	SW TACT SOR-122HS T05
SW807	ES-396610J	SW TACT SOR-122HS T05
SW808	ES-396610J	SW TACT SOR-122HS T05
SW809	ES-396610J	SW TACT SOR-122HS T05
SW810	ES-396610J	SW TACT SOR-122HS T05
SW811	ES-396610J	SW TACT SOR-122HS T05
SW812	ES-396610J	SW TACT SOR-122HS T05
SW813	ES-396610J	SW TACT SOR-122HS T05
SW814	ES-396610J	SW TACT SOR-122HS T05

8. TR (A) P.C. BOARD

Ref. No.	Part No.	Description
TR201	* ET-422511J	TR 2SD2375 P

9. TR (B) P.C. BOARD

Ref. No.	Part No.	Description
TR415	* ET-422511J	TR 2SD2375 P

10. DECODER (A) P.C. BOARD (EOH(Y2))

Ref. No.	Part No.	Description
L1	EO-345881	COIL FIX 1 EL0606SKI 101J
PJ1	EJ-389864J	SOCKET M1817 21P
PJ2	EJ-389915J	SOCKET M1817-A 21P
TR1	ET-353899	TR 2SA1317 S,T,U
TR2	ET-397160J	TR 2SC3330 R,S,T,U,V
TR3	ET-397160J	TR 2SC3330 R,S,T,U,V
TR4	ET-397160J	TR 2SC3330 R,S,T,U,V
TR5	ET-397160J	TR 2SC3330 R,S,T,U,V
TR6	ET-353899	TR 2SA1317 S,T,U
TR7	ET-397160J	TR 2SC3330 R,S,T,U,V

11. DECODER (B) P.C. BOARD (EOH(Y2))

Ref. No.	Part No.	Description
IC31	EI-310036	IC TC4066BP
IC32	EI-310036	IC TC4066BP
L31	EO-345881	COIL FIX 1 EL0606SKI 101J
P31	EJ-422096J	SOCKET HLEM14S-1 14P
TR31	ET-419710J	TR UN4113 T05
TR32	ET-421941J	TR UN4213 T05
TR33	ET-397160J	TR 2SC3330 R,S,T,U,V
TR34	ET-397160J	TR 2SC3330 R,S,T,U,V
TR35	ET-397160J	TR 2SC3330 R,S,T,U,V
TR36	ET-421941J	TR UN4213 T05
TR37	ET-419710J	TR UN4113 T05
TR38	ET-397160J	TR 2SC3330 R,S,T,U,V
TR39	ET-397160J	TR 2SC3330 R,S,T,U,V
TR40	ET-353899	TR 2SA1317 S,T,U
TR42	ET-353899	TR 2SA1317 S,T,U
1	EW-421818J	CORD FFC BD P1.25 L=110 14P

12. VIF UNIT (EXCEPT EDG,G205EM)

Ref. No.	Part No.	Description
CF1-A	EH-730625J	FILTER CE SAF38.9MZW70Z [EXCEPT EA,ES,EK]
CF1-B	EH-714626	FILTERCE SAW SAF36.9MZ70Z [EA]
CF1-C	EH-714627	FILTER CE SAW SAF38.9MW70Z [ES]
CF1-D	EH-714628	FILTER CE SAW SAF39.5MZ70Z [EK]
CF2-A	EH-373920	FILTER CE SFE5.5MB [EXCEPT ES,EK]
CF2-B	EH-373921	FILTER CE SFE6.0MB [ES,EK]
CF3-A	EH-368948	FILTER CE TPS5.5MW 5.5000MHZ [EXCEPT ES,EK,G204EM]
CF3-B	EH-373919	FILTER CE TPS6.0MB [ES,EK]
CF3-C	EH-729986J	FILTER CE TPS5.5MB2 [G204EM]
IC1	EI-368809	IC M51496P
L1	EO-387800J	COIL FIX 1 EL0405SKI 2R7K
L3-A	EH-733514J	COIL SIF DET 6F16437A1 [EXCEPT ES,EK]
L3-B	EO-732831J	COIL SIF DET 6F16437A2 [ES,EK]
L4-A	EO-732832J	COIL AFT 6F16435A1 [EXCEPT EA]
L4-B	EH-733515J	COIL AFT 6F16436A2 [EA]
L5-A	EO-732833J	COIL TANK 7KL 6F16436A1 [EXCEPT EA]
L5-B	EH-733516J	COIL TANK 6F16441A1 [EA]
L6-A	EO-387799J	COIL FIX 1 EL0405SKI 180K [EXCEPT ES,EK]
L6-B	EO-387798J	COIL FIX 1 EL0405SKI 150K [ES,EK]
L7-A	EO-387799J	COIL FIX 1 EL0405SKI 180K [EXCEPT ES,EK]
L7-B	EO-387798J	COIL FIX 1 EL0405SKI 150K [ES,EK]
L8	EO-387802J	COIL FIX 1 EL0405SKI 330K
L51	EO-725964J	COIL TRAP 6F16222A1 [EO,EOG]
L52	EO-725965J	COIL TRAP 6F16223A1 [EO,EOG]
Q1	ET-725820J	TR CHIP 2SC2735J
Q2	ET-370818	TR CHIP 2SA1235
Q51	ET-724885J	TR CHIP RT1N141C [EO,EOG]
Q52	ET-724885J	TR CHIP RT1N141C [EO,EOG]
VR2	EV-396023J	R S-FIX H T05EVNDXAA03 0.1W2 22
VR51	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W2 23
VR52	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W2 23 [EO,EOG]

13. VIF UNIT (EDG,G205EM)

Ref. No.	Part No.	Description
CF1	EH-368816	FILTER CE SAF38.0MZA70Z
CF2	EH-376338	FILTER CE TPS6.5MB
CF3	EH-368948	FILTER CE TPS5.5MW 5.5000MHZ
CF4	EH-373918	FILTER CE TPS5.5MB
CF51	EH-412432J	FILTER CE SFSH6.5MDB 6.500MHZ
CF52	EH-368827	FILTER CE SFS5.5MD 5.500MHZ
CF53	EH-373921	FILTER CE SFE6.0MB
IC1	EI-368809	IC M51496P
L1	EO-387782J	COIL FIX 1 EL0405SKI 2R2K
L2	EO-732831J	COIL SIF DET 6F16437A2
L3	EO-732832J	COIL AFT 6F16435A1
L4	EO-732833J	COIL TANK 7KL 6F16436A1
L5	EO-397238J	COIL FIX 1 EL0405SKI 6R8K
L6	EO-387798J	COIL FIX 1 EL0405SKI 150K
L51	EO-396361J	COIL FIX 1 EL0405SKI 8R2K
L52	EO-387803J	COIL FIX 1 EL0405SKI 221K
Q1	ET-725820J	TR CHIP 2SC2735J
Q2	ET-370818	TR CHIP 2SA1235
Q3	ET-370819	TR CHIP 2SC3052
Q4	ET-370818	TR CHIP 2SA1235
Q51	ET-370819	TR CHIP 2SC3052
Q52	ET-370819	TR CHIP 2SC3052
VR1	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W223
VR2	EV-396023J	R S-FIX H T05EVNDXAA03 0.1W222
X51	EI-368829	OSC CE CSB512P

14. PRE-AMP P.C. BOARD

Ref. No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
D2	ED-307572	D SILICON H 1SS131
IC1	EI-418699J	IC STV5716
IC101	EI-414861J	IC LA7285
L1	EO-414622J	COIL FIX 1 EL0607RA T05 101K
L101	EO-390717J	COIL FIX 1 LHL06TB T05 103J
P2	EJ-422093J	SOCKET HLEM9R-1 9P
P4	EJ-418748J	SOCKET HLEM19R-1 19P
TR1	ET-353899	TR 2SA1317 S,T,U
VR1	EV-403988J	R S-FIX V T05EVNDCAA03 0.1W102

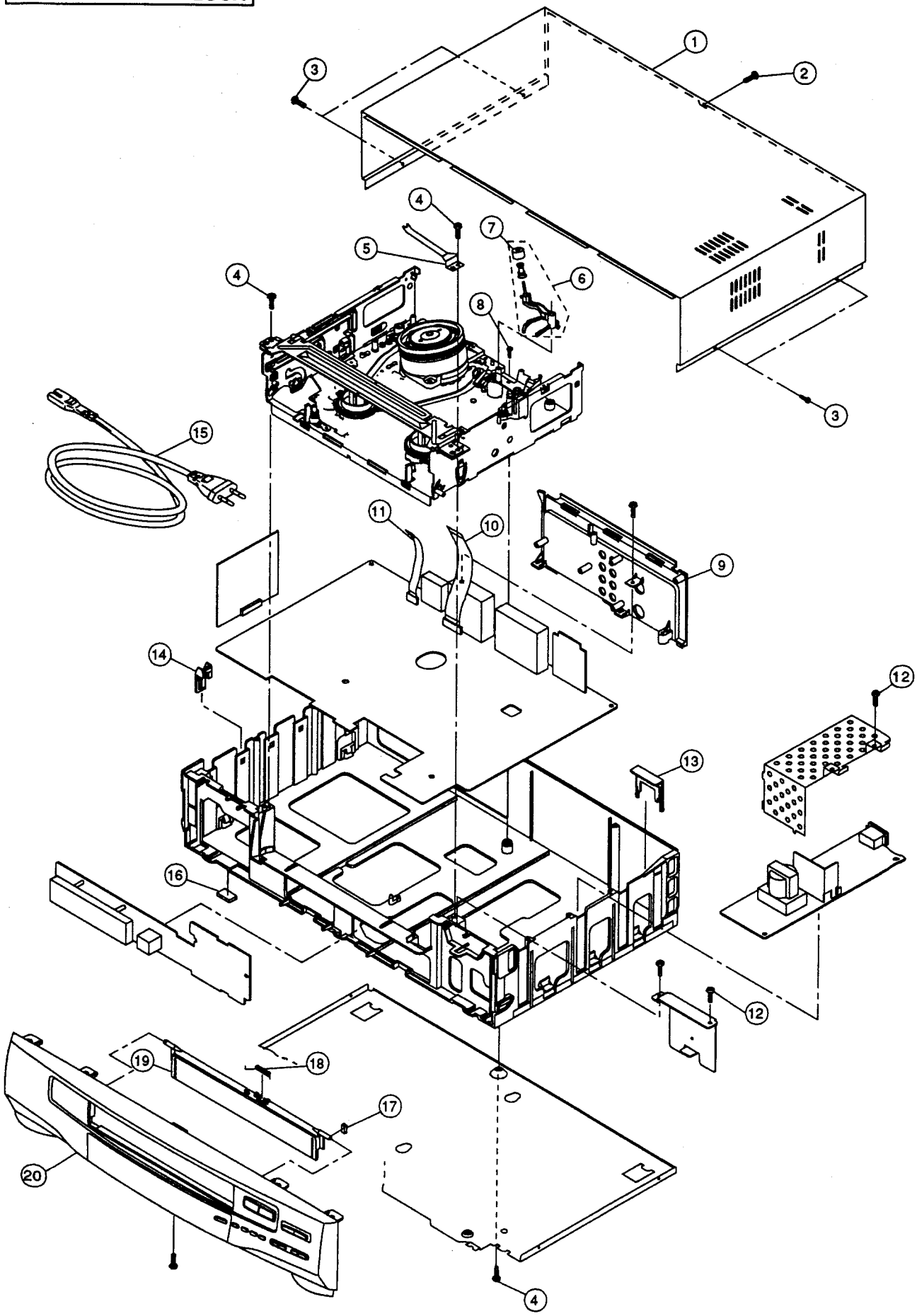
15. POWER SUPPLY P.C. BOARD

Ref. No.	Part No.	Description
C1	✱ EC-422101J	C MMY V CUT MKTR40 104M 275AC
C2	✱ EC-422101J	C MMY V CUT MKTR40 104M 275AC
C3	✱ EC-418706J	C CE V CUT CS11 E222M 400AC
C4	✱ EC-418706J	C CE V CUT CS11 E222M 400AC
C5	✱ EC-418706J	C CE V CUT CS11 E222M 400AC
C6	✱ EC-418706J	C CE V CUT CS11 E222M 400AC
C7	✱ EC-418706J	C CE V CUT CS11 E222M 400AC
C8	✱ EC-418706J	C CE V CUT CS11 E222M 400AC
C9	✱ EC-418706J	C CE V CUT CS11 E222M 400AC
C11-A	✱ EC-422103J	C EC V CUT TWSS 470M400.0DC
	✱ EC-422104J	C EC V CUT USW18 820M 400.0DC [EM]
C12	✱ EC-418760J	C CE V T05 FK22 Y5R103K 500DC
C13	✱ EC-418759J	C CE V T05 CC45 SL121K1000DC
C15	✱ EC-418841J	C MMY V T05 ECQ-VL2 333J 50DC
C24	EC-418690J	C EC V CUT SXE12 222M 6.3DC
D1	✱ ED-422125J	D SILICON 1N4006 T26 800/1.0A
D2	✱ ED-422125J	D SILICON 1N4006 T26 800/1.0A
D3	✱ ED-422125J	D SILICON 1N4006 T26 800/1.0A
D4	✱ ED-422125J	D SILICON 1N4006 T26 800/1.0A
D5	✱ ED-418976J	D SILICON EG01CW T05 1000/0.5A
D6	ED-307572	D SILICON H 1SS131
D7	ED-307572	D SILICON H 1SS131
D20	ED-422243N	D SCHOT.AK03WK T05 [EM]
D21	ED-425207J	D SILICON ERA18-02 T26
D22	ED-418625J	D SCHOTTKY EK14LF-G1 S12
D23	ED-418624J	D SCHOTTKY RK39LF-B2 S12
D24	ED-425207J	D SILICON ERA18-02 T26
D25	✱ ED-422420J	D ZENER H MTZJ20C T26
D27	✱ ED-422420J	D ZENER H MTZJ20C T26
D28	ED-422243N	D SCHOT.AK03WK T05 [EXCEPT EM]
D31	ED-307572	D SILICON H 1SS131
D32	ED-422243N	D SCHOT.AK03WK T05
F1	✱ EF-601964	FUSE SET T 250V 1.60A
FR1-A	✱ ER-410380J	R FUSE V T05 RF25SCVTP1/4WR91K [EXCEPT EM]
FR1-B	✱ ER-408829J	R FUSE V T05 RF25SCVTP1/4WR11K [EM]
IC2	EI-422128N	IC TA76431S T05
L1	✱ EO-339907	COIL LF FKOB160MH16 1000.0UH [EOG]
L2	✱ EO-418689J	COIL LF LF-4DA-333
L3	EO-418875J	COIL FIX 1 LAP02TA T26 2R2J [EOG]
PH1	✱ ET-422113J	PHOTO COUPLER PS2561-1-V
P1	✱ EJ-416590J1	SOCKET INLET CCT-2302-0371 2P
R1	✱ ER-418739J	R CT P RGG3 3W 4R7K
R2	✱ ER-422181J	R OMF H S20 FS ERG3SH 3W 823J
R6-A	✱ ER-422186J	R OMF H S15 FS PR02 2W 151J [EXCEPT EM]
R6-B	✱ ER-425232J	R OMF H S15 FS PR02 2W 431J [EM]
R7-A	✱ ER-411836J	R OMF H S15 FS 2W 1R0J [EXCEPT EM]
R7-B	✱ ER-418808J	R OMF H S15 FS RSSX 2W R68J [EM]
R11	ER-318316	R MF H F10 1/4W 2201F
R12	ER-314600	R MF H 1/4W 1601F
R23	✱ ER-425232J	R OMF H S15 FS PR02 2W 431J [EM]
R25	✱ ER-425231J	R OMF H S20 FS ERG3SH 3W 431J [EM]
R27-A	✱ ER-386215J	R OMF H S12 FS 1W 220J [EXCEPT EM]
R27-B	✱ ER-397193J	R OMF V T05FS ERG1SE 1W 100J [EM]
T1-A	✱ BT-425397N	TRANS POW V1182 EK [EM]
T1-B	✱ BT-422116N	TRANS POW V1184 EM [EXCEPT EM]
TR1	✱ ET-422118J	TR 2SC4304 O,Y
TR2	✱ ET-422129J	TR 2SD2132 U,V T05

16. VPS/PDC P.C. BOARD (EOG,G215EK/EOH(Y1))

Ref. No.	Part No.	Description
IC201	EI-422090J	IC SAA5233P
L1	EO-381189J	COIL FIX 1 EL0405SKI 100K
L2	EO-403937J	COIL FIX 1 EL0405RA T05 4R7J
L201	EO-412317J	COIL FIX 1 LAP02TA T26 4R7J
TR1	ET-397160J	TR 2SC3330 R,S,T,U,V
X201	EI-422092J	OSC X'TALAPS1008 3RD27.000MHZ

FINAL ASSEMBLY BLOCK



17. FINAL ASSEMBLY BLOCK

Ref. No.	Part No.	Description
1	SP-420296J	COVER UPPER AX
2	ZS-365702	PLX BID30X10STL BNI
3	ZS-385611J	DT BID26X06STL BNI
4	ZS-362378	PLX BID30X10STL CMT
5	MZ-420496N1	EARTH MECHA (SG)
6	HZ-V1182A200A	HEAD CLEANER BLK G204ES
7	HZ-417681J	ROLLER HEAD CLEANER(2)
8	ZS-407886J	BT PAN30X08STL BZN C100
9-A	SP-422597N	PANEL REAR JACK EA (SG) [EA,G204EM]
9-B	SP-422598N	PANEL REAR JACK ES (SG) [ES]
9-C	SP-422602N	PANEL REAR JACK EDG (SG) [EDG]
9-D	SP-422599N	PANEL REAR JACK EOH (SG) [EK,EO,EOH(E)/(Y1)]
9-E	SP-422600N	PANEL REAR JACK EOH(2) (SG) [EOH(Y2)]
9-F	SP-422603N	PANEL REAR JACK EOG (SG) [EOG]
9-G	SP-424902N	PANEL REAR JACK EM (SG) [G205EM]
10	EW-421820J	CORD FFC BD P1.25 L=100 19P
11	EW-421819J	CORD FFC BD P1.25 L=90 9P
12	ZS-383379J	PLX BID30X08STL CMT
13	SZ-420495N	COVER INLET (SG)
14	SZ-420493N	HOLDER PC(1) (SG) [EOG,G215EK/EOH(Y1)]
15-A	* EW-412523J	AC CORD200S KP561KS15F B S [EA]
15-B	* EW-412524J	AC CORD200S KP610KS15F B B [EK]
15-C	* EW-412522J	AC CORD200S KP419CKS15F B V [EXCEPT EA,EK]
16	SA-420497J	FOOT AX
17	SZ-407193J	CUSHION MASK(2)
18	ZG-416251M	SP MASK(3) (SG)
19-A	SE-420295N	MASK CASSETTE VS-G204(E1) (SG) [G204EA/EOH]
19-B	SE-420575N	MASK CASSETTE VS-G204(E2) (SG) [G204ES]
19-C	SE-418934N	MASK CASSETTE VS-G204(E3) (SG) [G204EM]
19-D	SE-422905N	MASK CASSETTE 2 VS-G205(E1)SG) [G205EA]
19-E	SE-420507N	MASK CASSETTE VS-G205(E2) (SG) [G205EO/EOH]
19-F	SE-418935N	MASK CASSETTE VS-G205(E3) (SG) [G205EM/EDG]
19-G	SE-425925N	MASK CASSETTE VS-G206(E1) (SG) [G206EA]
19-H	SE-420593N	MASK CASSETTE VS-G211(E) (SG) [G211EOH]
19-I	SE-420498N	MASK CASSETTE VS-G212(G) (SG) [G212EOG]
19-J	SE-420512N	MASK CASSETTE VS-G215(E) (SG) [G215EK/EO/EOH]
19-K	SE-420504N	MASK CASSETTE VS-G217(G) (SG) [G217EOG]
20-A	BD-420299N	PANEL F(A)G204EA PART (SG) [G204EA/EOH]
20-B	BD-420571N	PANEL F(A)G204ES PART (SG) [G204ES]
20-C	BD-420576N2	PANEL F(A)G204EM PART (SG) [G204EM]
20-D	BD-418711N	PANEL F(A)G205EA PART (SG) [G205EA]
20-E	BD-420589N	PANEL F(A)G205EOH PART (SG) [G205EO/EOH]
20-F	BD-420579N2	PANEL F(A)G205EDG PART (SG) [G205EDG]
20-G	BD-419000N	PANEL F(A)G205EM PART (SG) [G205EM]
20-H	BD-425919N	PANEL F(A)G206EA PART (SG) [G206EA]
20-I	BD-420508N	PANEL F(A)G211EOH PART (SG) [G211EOH]
20-J	BD-420499N	PANEL F(A)G212EOG PART (SG) [G212EOG]
20-K	BD-420584N	PANEL F(A)G215EK PART (SG) [G215EK]
20-L	BD-420628N	PANEL F(A)G215EO PART (SG) [G215EO/EOH(E)]
20-M	BD-420510N	PANEL F(A)G215EOH PART (SG) [G215EOH(Y1)/(Y2)]
20-N	BD-420501N	PANEL F(A)G217EOG PART (SG) [G217EOG]

NOTE :

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

18. ACCESSARY

Ref. No.	Part No.	Description
1	EW-348414	CORD PAL
2-A	AV-416966M1	REMOCON RC-W100E [G204EA/ES]
2-B	AV-422041N	REMOCON RC-W152E [EM,G204EOH,G205EA/EDG/EO/EOH, G206EA]
2-C	AV-422037N	REMOCON RC-W552E [G211EOH]
2-D	AV-422036N	REMOCON RC-W552G [G212EOG]
2-E	AV-422040N	REMOCON RC-W562E [EK]
2-F	AV-422039N	REMOCON RC-W572E [G215EO/EOH]
2-G	AV-422038N	REMOCON RC-W572G [G217EOG]
3-A	SP-733721N	LIDAX-LCD [RC-W552]
3-B	SP-733722N	LIDAX-VIDEO PLUS [RC-W562]
3-C	SP-733723N	LIDAX-SHOW VIEW [RC-W572]
4	SC-733720N	COVER BATTERY (AX) [RC-W552/562/572]

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AV422036N	18-2-D	EC418706J	15-C7	ED425400J	6-D211	EJ416590J1	15-P1
AV422037N	18-2-C	EC418706J	15-C8	ED425401J	6-D404	EJ418748J	14-P4
AV422038N	18-2-G	EC418706J	15-C9	ED511907	6-D415	EJ418763J	6-P301
AV422039N	18-2-F	EC418759J	15-C13	ED511907	6-D416	EJ422093J	14-P2
AV422040N	18-2-E	EC418760J	15-C12	ED511907	6-D417	EJ422096J	6-P102
AV422041N	18-2-B	EC418841J	15-C15	ED511907	6-D418	EJ422096J	11-P31
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BAV1182A600D	5-1-D	EC422104J	15-C11-B	EE405638J	6-TU1-C	EJ422178J	6-P403
BAV1182A600G	5-1-G	ED307572	6-D10	EE412395J	6-TU1-G	EM422142J	7-FL801
BAV1182A600L	5-1-K	ED307572	6-D11	EE416524J1	6-TU1-H	EO339907	15-L1
BAV1182A610A	5-2-A	ED307572	6-D20	EE416854J	6-TU1-D	EO345881	6-L102
BAV1182A610B	5-2-B	ED307572	6-D21	EE419189J	6-TU1-A	EO345881	6-L105
BAV1182Q600E	5-1-E	ED307572	6-D31	EF601964	15-F1	EO345881	10-L1
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BAV1182Q600K	5-1-J	ED307572	6-D204	EH368948	12-CF3-A	EO381189J	6-L401
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BAV1184S500C	5-3-B	ED307572	6-D322	EH373919	12-CF3-B	EO381193J	6-L603
BAV1184S500D	5-3-C	ED307572	6-D330	EH373920	12-CF2-A	EO381195J	6-L606
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BV403238J1	6-IF1-E	ED405247J	6-D214	EI418647J	6-IC102	EO410093J	6-L697
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ET370819	13-Q51	ET421941J	6-TR696	ML420097N	3-12	ZG420098N	3-11
ET370819	13-Q52	ET421941J	6-TR699	ML420099N	4-20	ZG420101N	4-33
ET373391	6-TR212	ET421941J	11-TR32	ML420100N	4-32	ZG420103N	3-10

Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
ZG420105N	4-7						
ZG420117N	4-16						
ZG420129N	4-13						
ZG420134N	4-30						
ZG420162N	3-51						
ZG420166N	3-52						
ZG420167N	3-50						
ZG420169N	3-34						
ZS321298	2-1						
ZS336714	2-6						
ZS358936	2-4						
ZS358936	3-45						
ZS358936	4-2						
ZS362378	17-4						
ZS362533	3-40						
ZS365702	17-2						
ZS383379J	17-12						
ZS383761J	3-5						
ZS385611J	17-3						
ZS389950J	4-3						
ZS403887J	3-18						
ZS407886J	17-8						
ZS418480J	3-39						
ZS418616J	3-4						
ZS422170J	3-37						
ZS425694J	2-11						
ZS425981	4-4						
ZS432843	4-29						
ZS467796	2-10						
ZS550708	3-36						
ZS563444	2-8						
ZW321317	4-36						
ZW324417	3-42						
ZW350839	3-41						
ZW389923J	4-28						
ZW395919J	3-20						
ZW418816J	4-26						
ZW424667N	3-14						

ABBREVIATIONS (VIDEO)

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
A	Audio or Analogue	MOD	MODulator
AC	Alternating Current	MRS	Motor ReverSe
ACC	Automatic Color Control	NAP	NtscAmusement Pal
A/C	Audio and Control	NG	Noise Gate
ADJ	ADJust (ment)	NICAM	Near Instanteneous CompandAudio Multiplex
AFC	Automatic Frequency Control		
AFT	Automatic Fine Tuning	NON-LIN	NON-LINear
AGC	Automatic Gain Control	N.T.S.C.	National Television System Committee
AH	Audio Head	OSC	OSCillator
AL	ALways (voltage)	PAL	Phase Alternation by Line
ALC	Automatic Level Control	PB	Play Back
A-SW.P	Audio SWitching Pulse	PCB (P.C.B)	Printed Circuit Board
A-MUTE	Audio MUTE	P-COM	Phase-COMparator
ANT	ANTenna	P DOWN	Power DOWN
APC	Automatic Phase Control	PG	Pulse Generator
ASSY	ASSemblY	P.I.P	Picture In Picture
BAL	BALance	PL, PLG	PLunger (PLunGer)
B DOWN	Break DOWN	PRG (PGM)	PRoGram (ProGraM)
BGP	Burst Gate Pulse	PU	Pick UP (head, pulse)
BLK	BLocK or BLacK	PWR	PoWeR
BOP	Blank Output Pulse	Q	Quality factor
BPF	Band Pass Filter	R	Right
BU	Back Up (voltage)	RAM	Random Access Memory
B/W	Black and White	REC	RECord
C	Chroma or Color	REF	REFerence
CCD	Charge Coupled Device	REF-V	REFerence Vertical signal
CCIR	Comit Consultatif International des Radio communications	REG	REGulator
		REV (REVW)	REView (REVieW)
CH (ch)	CHannel (channel)	REW	REWind
CLK	CLocK	RF	Radio Frequency
CM	Capstan Motor	ROM	Read Only Memory
CN	CoNnector	R.S SW	Record-Safety SWitch
COMP	COMParator	RST (RES)	ReSet (RESet)
CSW	Cassette SWitch	RVS	ReVerSe
CSYNC	Composite SYNC	S	Sensor, Shield
CTL	ConTrol	SAW	Surface Acoustic Wave
CUE	CUE	SC	SimulCast
DAC	Digital to Analog Converter	S CLK	Serial CLocK
DC	Direct Current	SECAM	SÉquentiel Couleur À Mémoire
DEMOD	DEMODulator	S & H	Sample and Hold
DET	DETetct (DETector)	SLP	Super Long Play
DL	Delay Line	SP	Standard Play
DM	Drum Motor	SPD	SPeeD
DOC	Drop Out Compensator	SRP	Supply Reel Pulse
D.P.E	Drum Phase Error	SRV	SeRVo
D.PG	Drum Pulse Generator	SOW	Sync On Word
EE	Electronic to Electronic	STBY	STandBY
EF	Emitter Follower	S.VHS	Super VHS
EMPHA	EMPHAsis	SW	SWitch
ENV	ENVelope	SW'NG	SWitchiNG
EP	Extended Play	SWP	SWitching Pulse
EP ROM	Erasable Programmable ROM	SYNC	SYNChronize
EQ	EQualizer	T-AUDIO	TunerAUDIO
FE	Full track Erase	TPZ (TRAPE)	TraPeZoid (TRAPEzoid)
FF	Flip-Flop or Fast Foward	TRK	TRacKing
FG	Frequency Generator	TRP	Take up Reel Pulse
Fig	Figure	T/U	Take Up
FLD	FLuorescent Display	TV	TeleVision
FM	Frequency Modulation	UHF	Ultra High Frequency
Fo	resonance Frequency	UNR	UNRegulated (voltage)
FREQ	FREQuency	V	Vertical or Video
GND	GrouND	VASS	Video Address Search System
H	Horizontal	VCO	Voltage Controlled Oscillator
HP	Horizontal (sync) pulse	VH	Video Head
HPF	High Pass Filter	VHF	Very High Frequency
HQ	High Quality System	VHS	Video Home System
IC	Integrated Circuit	VIF	Video Intermediate Frequency
ID	IDentification	VISS	Video Index Search System
IDL	IDLe (Voltage)	VJ	Video Judge
IMS	Interactive Monitor System	VM	Voltage for Memory
INS	INSert	VOB	Video On Blank
INV	INVerter	VOW	Video On Word
L	Left	VP	Vertical (sync) Pulse
LED	Light Emitting Diode	VPS	Video Program System
LIM	LIMitter	VPT	Video Programming by video Text
LM	Loading Motor	VT	Voltage for Tuning
LM STP	Loading Motor STop	WHT	WHiTe
LP	Long Play	Y	Luminance
LPF	Low Pass Filter	2H	2 Hour (SP)
ME-SECAM	Middle East SECAM	4H	4 Hour (LP)
MI-COM	MIcro COMputer	6H	6 Hour (SLP/EP)
MM	Mono-stayble Multi		

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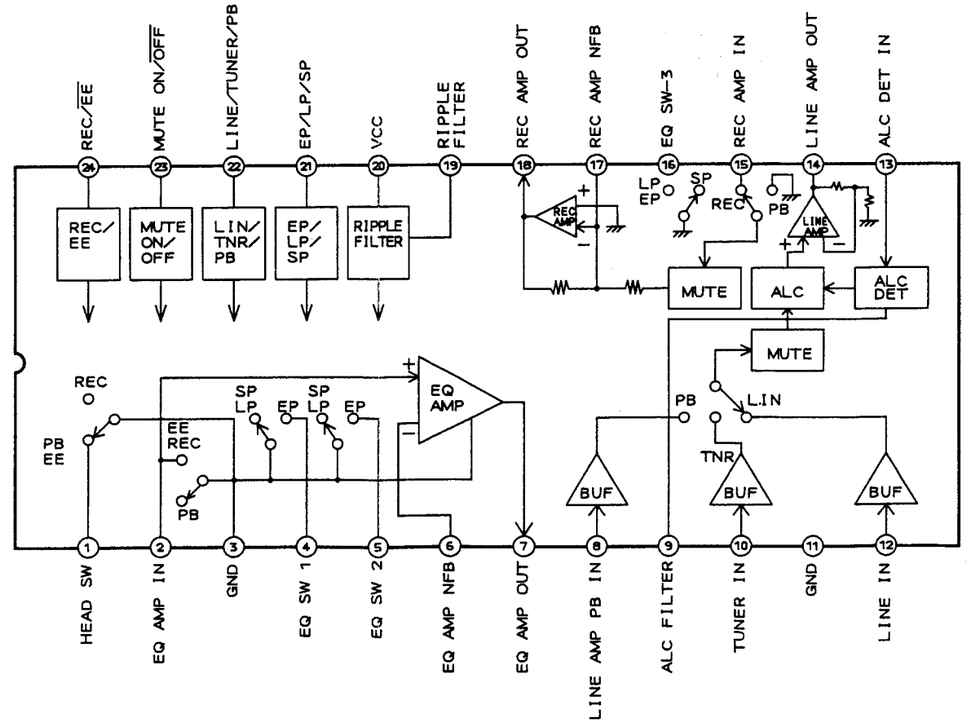
AN3558FBS (Y/C SIGNAL PROCESSOR)

PIN No.	PORT NAME	I/O	FUNCTION
1	MOD IN	I	REC FM modulator input pin.
2	W/C	–	For white clip level adjustment.
3	MDE OUT	O	Main de-emphasis output pin.
4	MDE PEAK	–	For main de-emphasis peaking control.
5	Vcc (Y)	–	Power supply (for modulator & RF system).
6	REC FM OUT	O	REC FM modulator output pin.
7	DEM GAIN	–	De-modulator gain control pin.
8	PB FM IN	I	PB FM Y signal input pin.
9	ENV DET	–	PB FM Y signal envelope level detect pin.
10	DOP OUT	O	Dropout pulse output pin.
11	EE/PB/TRICK	–	EE/PB/TRICK select pin (H : EE, M : PB, L : PB TRICK).
12	SP/LP/EP	–	SP/LP/EP select pin (H : EP, M : LP, L : SP).
13	C-KILL DET	–	Colour killer detect pin (L : killer ON).
14	NC CTL	–	Noise canceller (NLC/NC) control pin.
15	SLD	–	Side lock detect pin.
16	REC/PB	–	REC/PB select pin (H : PB-ID off, M : PB-ID on, L : REC).
17	BGP OUT	O	Burst gate pulse output pin.
18	ROT	I	Chroma rotary pulse input pin.
19	MODE SEL	–	LNC mode select pin (H : edit, M : NOR2, L : NOR1).
20	MUTE DET	–	Mute detect pin (L : mute, H : non mute).
21	RAD	–	REC APC detect pin.
22	GND(C)	–	Ground (for VCO).
23	AFC/APC	–	REC AFC/PB APC detect pin.
24	fVCO	–	VCO frequency adjustment pin.
25	fVCO(PAL)	–	fVCO select pin (L : PAL ON).
26	X'TAL(PAL)	–	X'tal connect pin for PAL.
27	X'TAL(N/P)	–	X'tal connect pin for NTSC or PAL. (commom pin)
28	X'TAL(NTSC)	–	X'tal connect pin for NTSC.
29	Vcc(C)	–	Power supply for VCO, VXO system.
30	Ref FH DET C	–	Chroma filter auto adjust detect pin.
31	2fsc	O	2fsc output pin.
32	GND(C)	–	Ground for VXO.
33	CACC DET	–	Chroma ACC detect pin.
34	REC C OUT	O	REC chroma signal output pin.
35	FACC DET	–	Field ACC detect pin for CH-2. (OFF when trick mode)
36	ACC DET	–	ACC detect pin.
37	FACC DET	–	Field ACC detect pin for CH-1. (OFF when trick mode)
38	ACC BAL	–	Capacitor connecting pin for ACC balance.
39	3.58/4.43	–	3.58/4.43 select pin (H : 3.58, L : 4.43).
40	VCC(C)	–	Power supply (for main chroma).
41	PB RF C IN	I	PB low chroma signal input pin.
42	CNR TEST	I	CNR monitor and on/off pin (ON : 3.4 V, OFF : 3.8 V).
43	GND(C)	–	Ground for chroma system.
44	TEST2	–	Test pin 2.
45	BMC	–	Capacitor connecting pin for BM balance.
46	TEST1	–	Test pin 1.
47	CACC-C	–	Capacitor connecting pin for chroma ACC balance.
48	COMB DRV	O	Driving output for comb filter.
49	C IN TH	I	Chroma signal input pin (direct in).
50	C IN COMB	I	Chroma signal input pin (through the COMB filter).
51	CNR DL	I	Input from the CNR delay line.
52	MODE SEL	–	Colour mode select pin (H : MESECAM, M : PAL, L : NTSC).
53	PB C OUT	O	PB chroma signal output pin.
54	Y LPF DET	–	Y LPF fsc detect pin.
55	Y/C MIX	I	PB chroma signal input for Y/C mix.
56	VCC(Y)	–	Power supply for Y signal.
57	V.OUT	O	Composite video signal output pin.
58	AVP	I	Quasi V-sync pulse input pin (H : sync level, M : gray level, L : through).
59	SCL DET	–	Sub clamp detect pin.
60	V.IN	I	Video signal input pin.
61	AGC DET	–	AGC level detect pin.
62	SECAM TH	O	SECAM through output pin.
63	EE ADJ	–	EE video level adjustment pin.
64	HSS OUT	O	H sync separator output pin.
65	SYNC DET	–	Sync separator detect pin.
66	SECAM CLP	I	SECAM clamp input pin.
67	Y LPF OUT	O	Y-LPF output pin.
68	CLP 1 IN	I	Clamp 1 input pin.
69	CLP 2 IN	I	Clamp 2 input pin.
70	CCD IN	O	Output for CCD.
71	YNR DEF	O	YNR diffrential component output pin.
72	CORR DET	I	Correlation detect input pin.
73	GND(Y)	–	Ground for Y signal.
74	CCD AGC DET	–	CCD AGC detect pin.
75	NC LPF	–	LPF pin for Noise Canceller.
76	PICT CTL	–	Picture control pin (L:sharp).
77	NLE/MDE	O	Non linear emphasis / main de-emphasis output pin.
78	CLP 3 IN	I	Clamp 3 input pin.
79	ME FBK	I	Main emphasis feedback input pin.
80	ME OUT	O	Main emphasised signal output pin.

LA7285 (AUDIO SIGNAL REC/PB AMP)



SWITCH FUNCTION

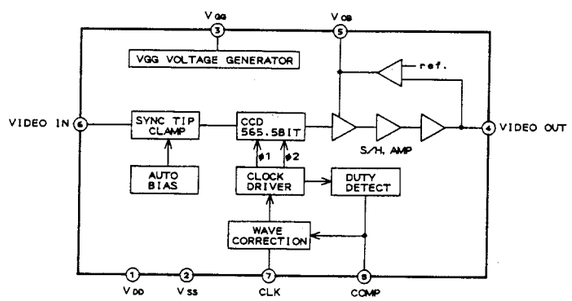
	DC LEVEL		
	0 ~ 1.0V	1.8 ~ 2.6V	3.6V
(21) PIN	SP	LP	EP
(23) PIN	PB	TUNER	LINE

M37770M4H (SERVO/SYSCON MI-COM)

PIN NO	PORT NAME	I/O	FUNCTION
1, 35, 84	VCC	–	+5 V power supply.
2	REMO	I	Remote control signal input.
4	TRP	I	Take up reel pulse input.
5	SRP	I	Supply reel pulse input.
6	SEC.MES	O	SECAM & MESECAM select output.
7	NTSC	O	NTSC mode select output.
8	C.SYNC	I	Cmposite sync input.
9	SP	O	Tape speed judge output.
10, 50 74, 103	VSS	–	Ground.
11	EE	O	EE control pin.
12	VP	O	Quasi V pulse signal output.
14	REC.S	O	REC start control output (except audio).
15	V.SWP	O	Video head switching pulse.
18	A.OSC	O	Audio bias start control.
19	A.REC	O	Audio REC start control.
20	A.EE	O	Audio EE control pin.
23	VJ	O	Video signal existence judge output.
27	P.DOWN	I	Power down detect input.
29	REC SAF	I	REC safety sw input.
30	S.PACK	I	S-VHS tape detect switch input.
31~ 34	RSW1~ 4	I	Input from the rotary (mecha. position detect) switch 1~ 4.
37	PB	O	PB mode control pin.
38	TRQUP	O	Loading motor torque control.
39	LM F	O	Loading motor direction control (forward).
40	LM R	O	Loading motor direction control (reverse).
44	NUB	–	No connection.
45	NUA	–	No connection.
46	RESET	I	Reset input.
47	X IN	I	X'tal osc input (f = 16 MHz).
48	X OUT	O	X'tal osc output (f = 16 MHz).
49	CLK SEL	I	Clock select input.
51	XC IN	I	X'tal osc input (f = 32.768 kHz).
52	XC OUT	O	X'tal osc output (f = 32.768 kHz).
53	INT/EXT	O	Input select control output.
55	TV/VCR	O	TV/VIDEO select control output.
56	I² C SDA	I/O	EEP ROM serial data in/out.
57	I² C SCL	O	EEP ROM serial clock output.
58	A.MUTE	O	Audio mute control.
59	T.MUTE	O	Tuner mute control.
62	AFT-L	I	AFT low level judge input.
63	AFT-H	I	AFT high level judge input.
64	AFT	O	AFT control output.
67	V.SYNC MON	–	Not used.
68	BAND B	O	Tuner band select output.
69	BAND A	O	Tuner band select output.
70	HS	O	Capstan motor high speed control.
71	F/R	O	Capstan motor direction control.
73	CM STOP	O	Capstan motor stop control.
75	TU POWER	O	Tuner power supply control.
76	SEN POW	O	End & start sensor's power supply control.
77	AL	O	AL power supply line control output.
79	SYS SO	O	Serial data out to OPE MI-COM.
80	SYS SI	I	Serial data in from OPE MI-COM.
81	SYS CLK	I	Serial clock input.
82	SYS RDY	O	Data transfer ready input.
83	SHORT	I	Power supply abnormal condition detect input.
85	AMP VCC	–	+5 V power supply for analog AMP.
86	AMP VREF	–	Voltage reference for analog AMP.

PIN NO	PORT NAME	I/O	FUNCTION
87	CLAMPR	I	CTL clamp AMP negative input.
88	CLAMPF	I	CTL clamp AMP positive input.
89	AMPC	–	Load capacitor connecting pin for CTL AMP.
90	CTLAMP OUT	O	CTL AMP output.
91	CTLAMP IN	I	CTL AMP input.
92	CTL+SWOUT	O	CTL internal sw control.
93	CTL+	I	CTL positive side input.
94	CTL–	I	CTL negative side input.
95	C	–	Capacitor connecting pin for REC CTL signal's trapezoid wave.
96	CP FG	I	Capstan motor FG signal input.
97	DM FG	I	Drum motor FG signal input.
98	DM PG	I	Drum motor PG signal input.
99	AMP VSS	–	Ground for analog system (FG, PG & CTL AMP).
100	A.VCC	–	+5 V power supply (for analogue system circuit).
102	VREF	–	Servo voltage reference.
106	PICT	O	Picture control output.
107	ANC.VOL	O	ANC control output.
109	LNC	O	Line noise canceller control (L/M/H).
111	E/P/T	O	EE/PB/TRICK select control (L/M/H).
112	ES	I	End sensor input.
115	SDP	I	SECAM (MESECAM) detect signal input.
116	SS	I	Start sensor input.
118	TUNE	O	ANC control (L.M.H).
119	ENV.DET	I	Video envelope input.
120	V.SYNC IN	I	V.SYNC input.
122	NP	O	Colour system convert request from NTSC to PAL.
123	C.FG MON	–	Not used.
124	D.FG MON	–	Not used.
125	CTL MON	–	Not used.
126	TUNER PWM	O	Tuning voltage output for tuner.
127	CM PWM	O	Capstan motor's speed & phase error output.
128	DM PWM	O	Drum motor's speed & phase error output.

LC8992 (CCD 1H DELAY LINE)



AKAI

ABX-A/E SERIES

MODEL VS-G204EA/EOH/EM/ES

MODEL VS-G205EA/EDG/EM/EO/EOH

MODEL VS-G206EA, G211EOH

MODEL VS-G212EOG, G217EOG

MODEL VS-G215EK/EO/EOH

SCHEMATIC DIAGRAMS AND PC BOARDS

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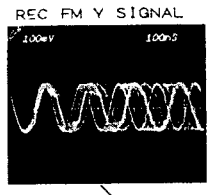
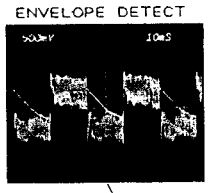
III. INFORMATION OF ICs 27

Use these schematic diagrams and PC boards together with the provided service manual.

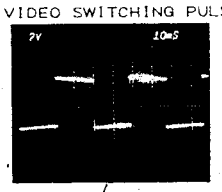
REC FM Y SIGNAL



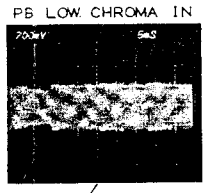
ENVELOPE DETECT



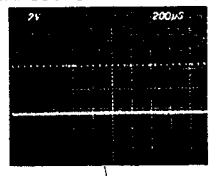
VIDEO SWITCHING PULSE



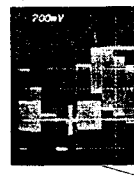
PB LOW CHROMA IN



COMPOSITE SYNC OUT (REC)



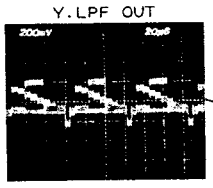
VIDEO SIGNAL



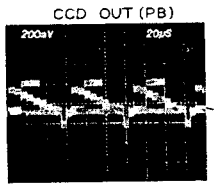
IC1 STV5716 (2 ch REC/PRE AMP)

PRE AMP PCB

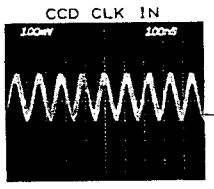
Y.LPF OUT



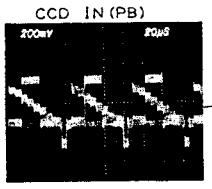
CCD OUT (PB)



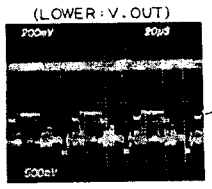
CCD CLK IN



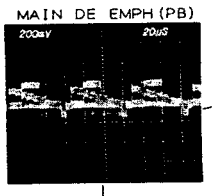
CCD IN (PB)



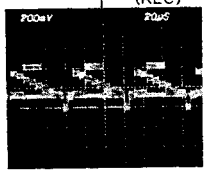
YNR OUT
(LOWER : V.OUT)



MAIN DE EMPH (PB)



(REC)



EOH (Y2) ONLY

DECODER (A) PCB

DECODER (B) PCB

TV MONITOR

DECODER

IC201 SAA5233

(VPS DATA PROCESS)

VPS/PDC PCB

IC601 LC8992
(CCD 1H DELAY LINE)

MAIN PCB

COLOR KILLER

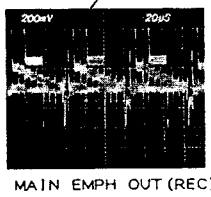
: PB Y SIGNAL LINE

: REC Y SIGNAL LINE

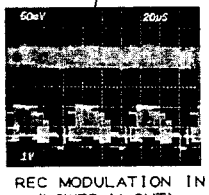
: PB CHROMA SIGNAL LINE

: REC CHROMA SIGNAL LINE

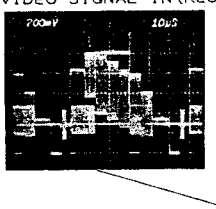
MAIN EMPH OUT (REC)



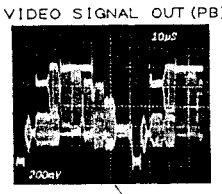
REC MODULATION IN
(LOWER : V.OUT)



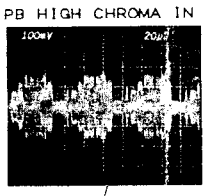
VIDEO SIGNAL IN (REC)



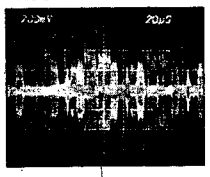
VIDEO SIGNAL OUT (PB)



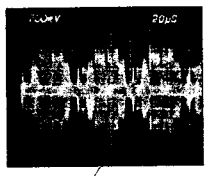
PB HIGH CHROMA IN



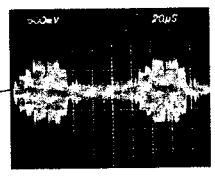
AGC AMP OUT



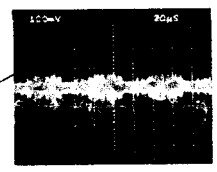
PB HIGH CHROMA



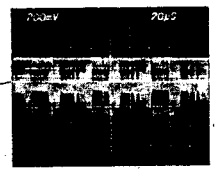
6dB AMP OUT



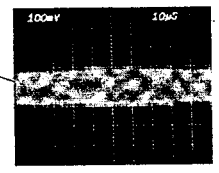
COMB FILTER IN



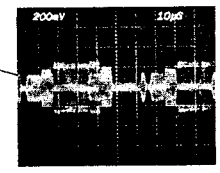
COMB FILTER OUT



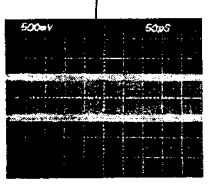
PB LOW CHROMA IN



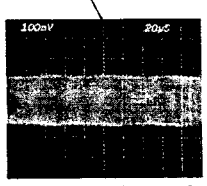
REC LOW CHROMA OUT



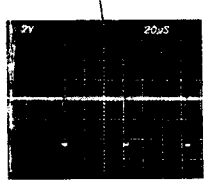
REC Y SIGNAL OUT



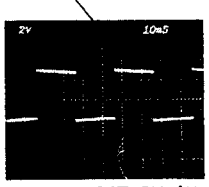
PB FM Y SIGNAL IN



BURST GATE PULSE



CHROMA ROTARY IN



IC757 MS2063SP
(NTSC→PAL PHASE CORRECT)

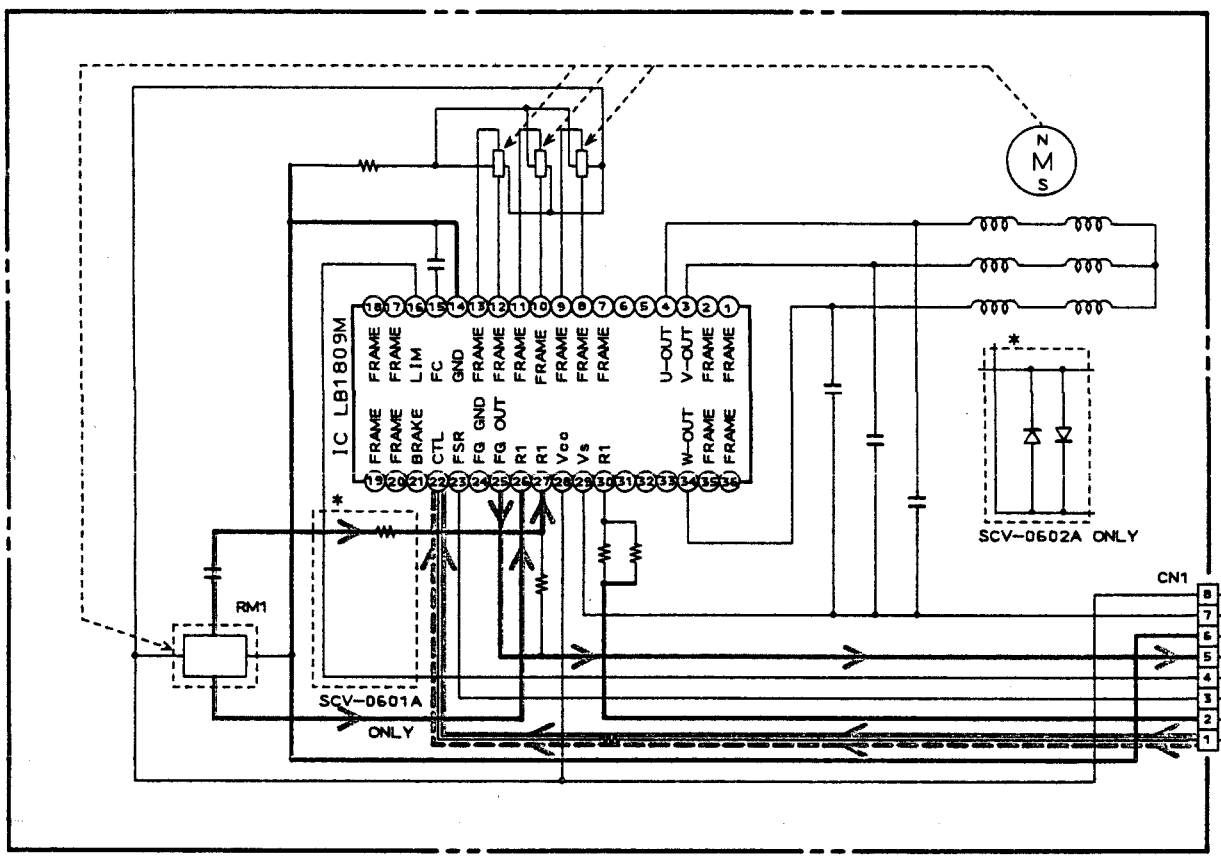
IC602 AN3558
(Y/C SIGNAL PROCESSOR)

IC401 M37770M4H
(SERVO/SYSCON MI-COM)

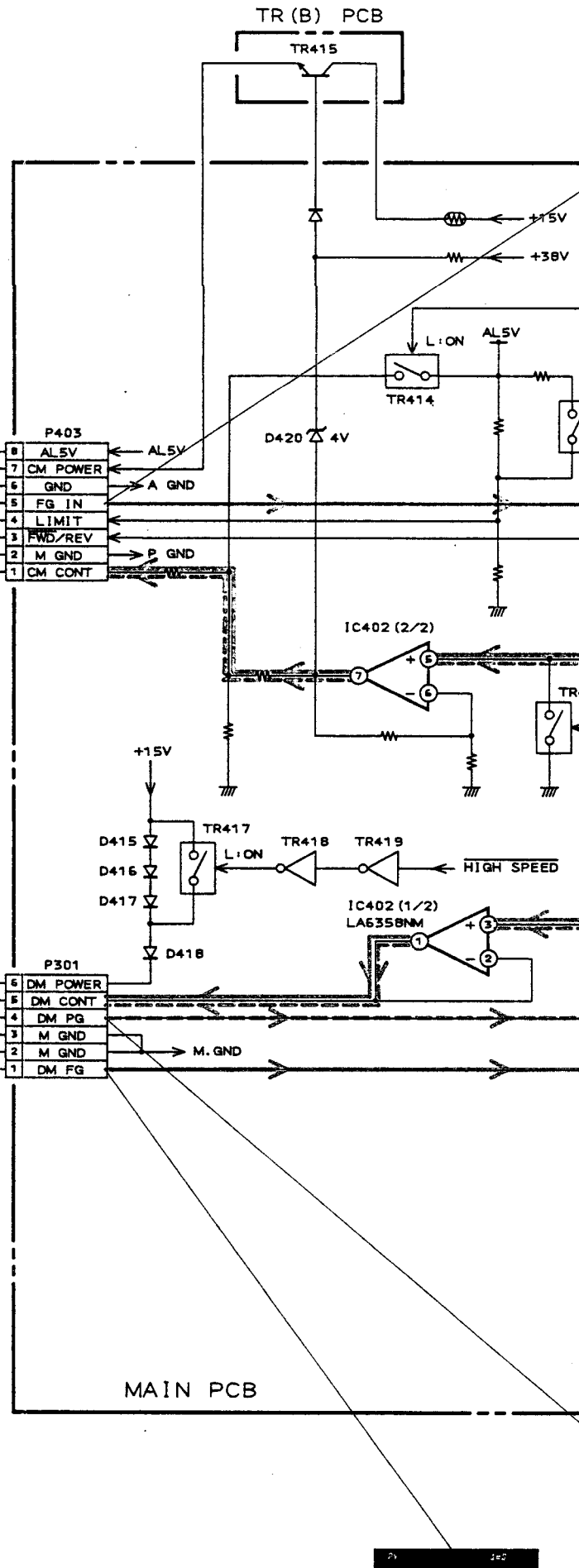
(VPS DATA PROCESS)
VPS/PDC PCB

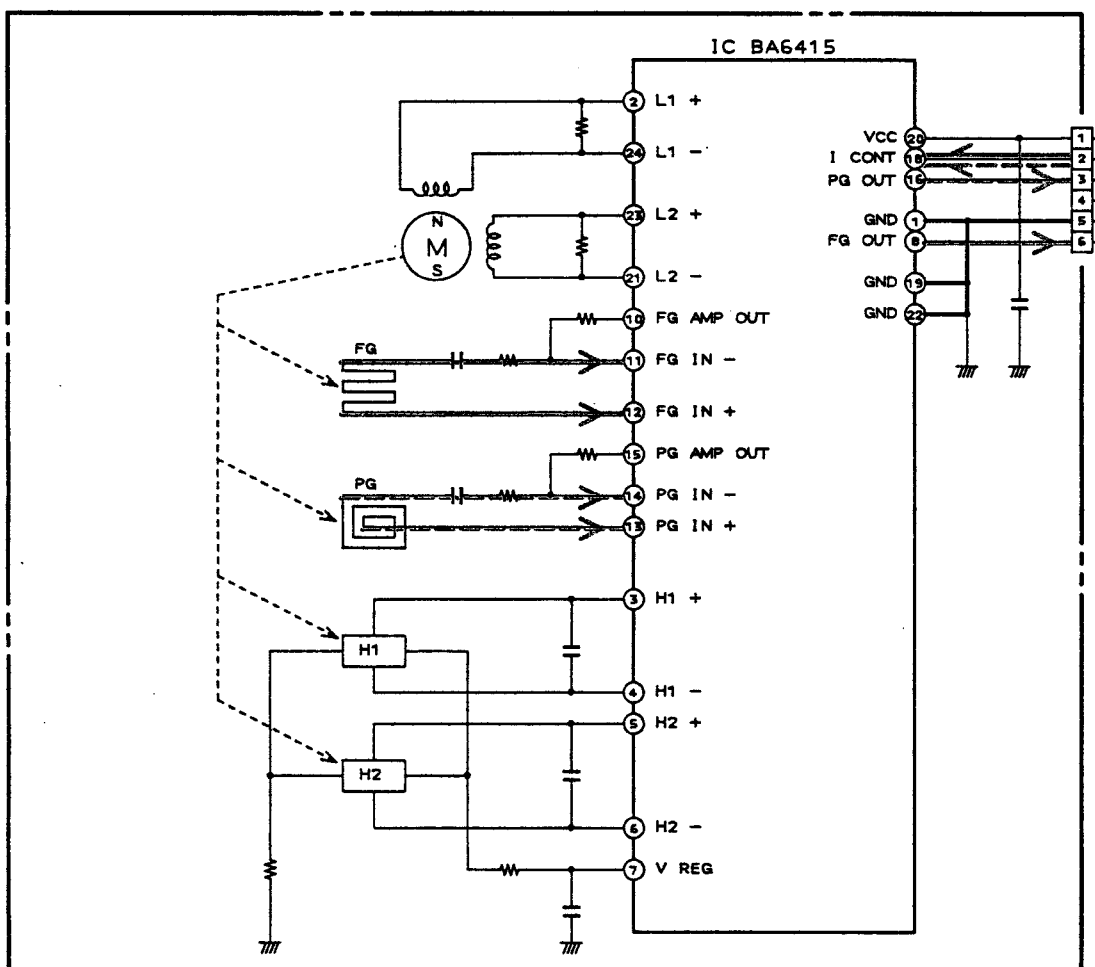
AN3558

ABX-A/E SERIES
VIDEO
BLOCK DIAGRAM
No.4-1 V118251M
A1

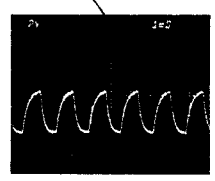


CAPSTAN MOTOR BLOCK (SCV-0601A/0602A)





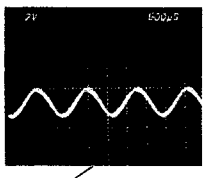
DRUM MOTOR BLOCK (SDV-0302A)



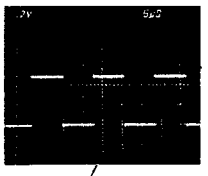
DM FG IN

NOTE: PHOTOGRAPHS EXCEPT [REC CTL OUT] WERE TAKEN DURING PB MODE.
EXCEPT [REC CTL OUT], PHOTOGRAPH' S SECOND LINE FROM THE BOTTOM IS DC 0V.

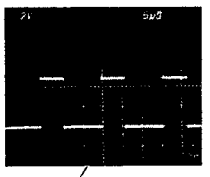
CM FG IN



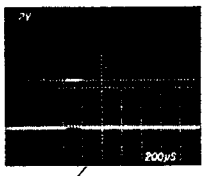
CM ERROR OUT



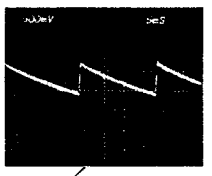
DM ERROR OUT



C SYNC IN



ENV DETECT IN



+15V

+38V

IC401 M37770M4H
(SERVO/SYS-CON MI-COM)

VIDEO HEAD

AL5V

TR416
L:ON

70 HIGH SPEED

HIGH SPEED

96 CM FG

71 FWD/REV

C SYNC 8 ← FROM IC602 64 PIN (SYNC OUT)

LPF

TR413

VIDEO AMP ← V SWP

PRE AMP PCB

(AUTO TRACKING CONT) 119 ENV DET

(SPEED)

CM PHASE/SPEED ERROR DETECT

(PB)
(PHASE)

REC /PB SW

94 CTL−

93 CTL+

P301 18 19

LPF

127 CM PWM

TR403

(CM ON/OFF CONTROL)
H:ON

73 CM STOP

(REC)

25Hz F.F

14 REC S
H:ON

TR410

CONTROL HEAD

120 V SYNC

HIGH SPEED

V SWP 15 → TO PRE AMP

LPF

128 DM PWM

TP401
CTL OUT

REC CTL OUT
(UPPER:CTL+
LOWER:CTL−)

CTL AMP OUT 90

(PHASE)

98 DM PG

DM PHASE/SPEED ERROR DETECT

97 DM FG

(SPEED)

CLAMP R 87

CLAMP F 88

SYS SO
SYS SI
SYS CLK
SYS RDY

47 48 51 52 79 80 81 82

TR420
H:ON
HIGH SPEED

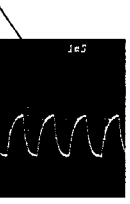
V SYNC IN

X401
16MHz

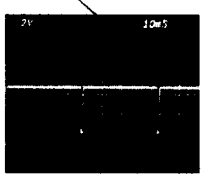
X403
32.768K

CTL AMP GAIN CONTROL

SWITCHING PULSE OUT



FG IN



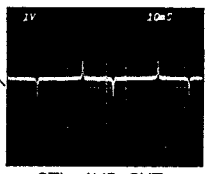
DM PG IN

OPE SI
SYS SO
SYS CLK
SYS RDY

6 5 8 9

IC801 μPD163123B
(OPE MI-COM)

OPERATION PCB



CTL AMP OUT

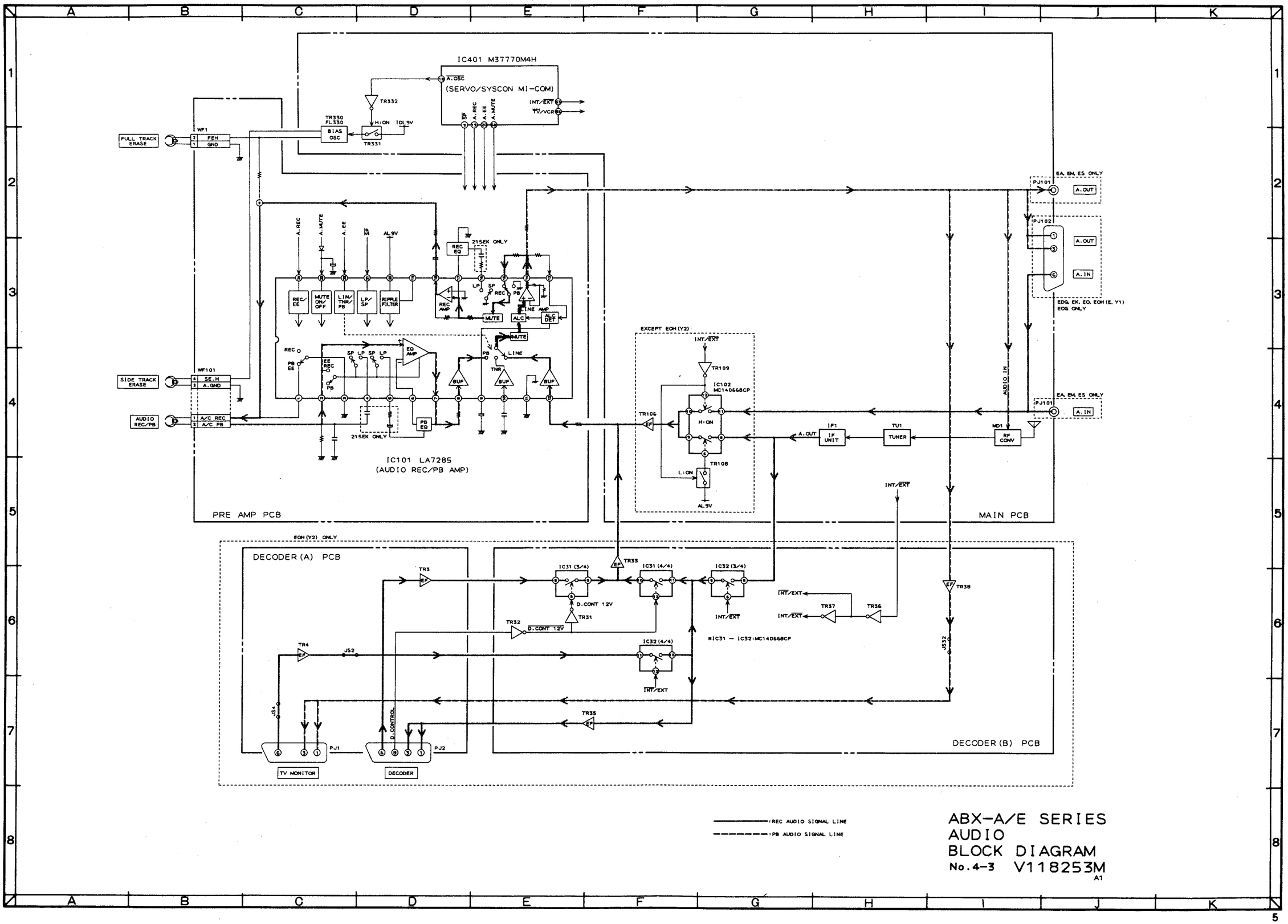
:CAPSTAN MOTOR SPEED CONTROL LINE

:CAPSTAN MOTOR PHASE CONTROL LINE

:DRUM MOTOR SPEED CONTROL LINE

:DRUM MOTOR PHASE CONTROL LINE

ABX-A/E SERIES
SERVO
BLOCK DIAGRAM
No.4-2 V118252M
A1



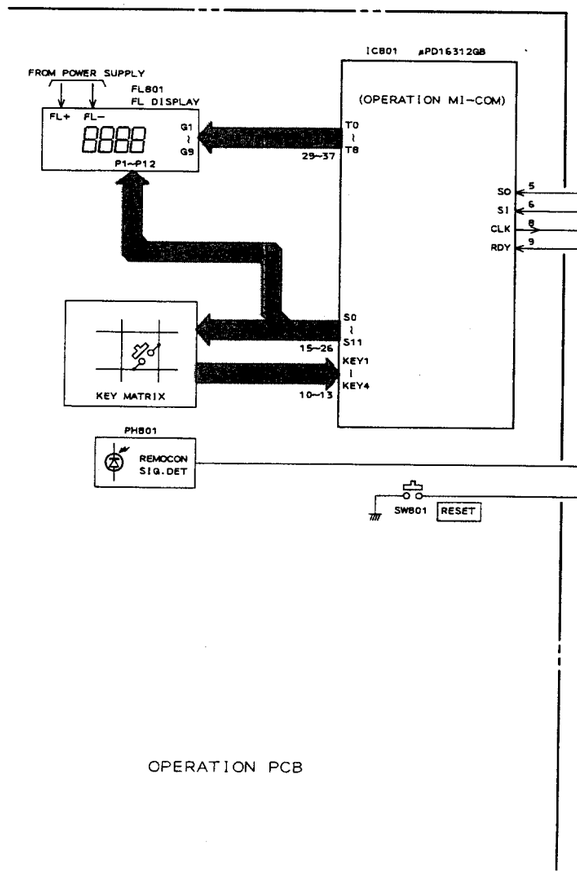
ABX-A/E SERIES AUDIO BLOCK DIAGRAM

No.4-3 V118253M

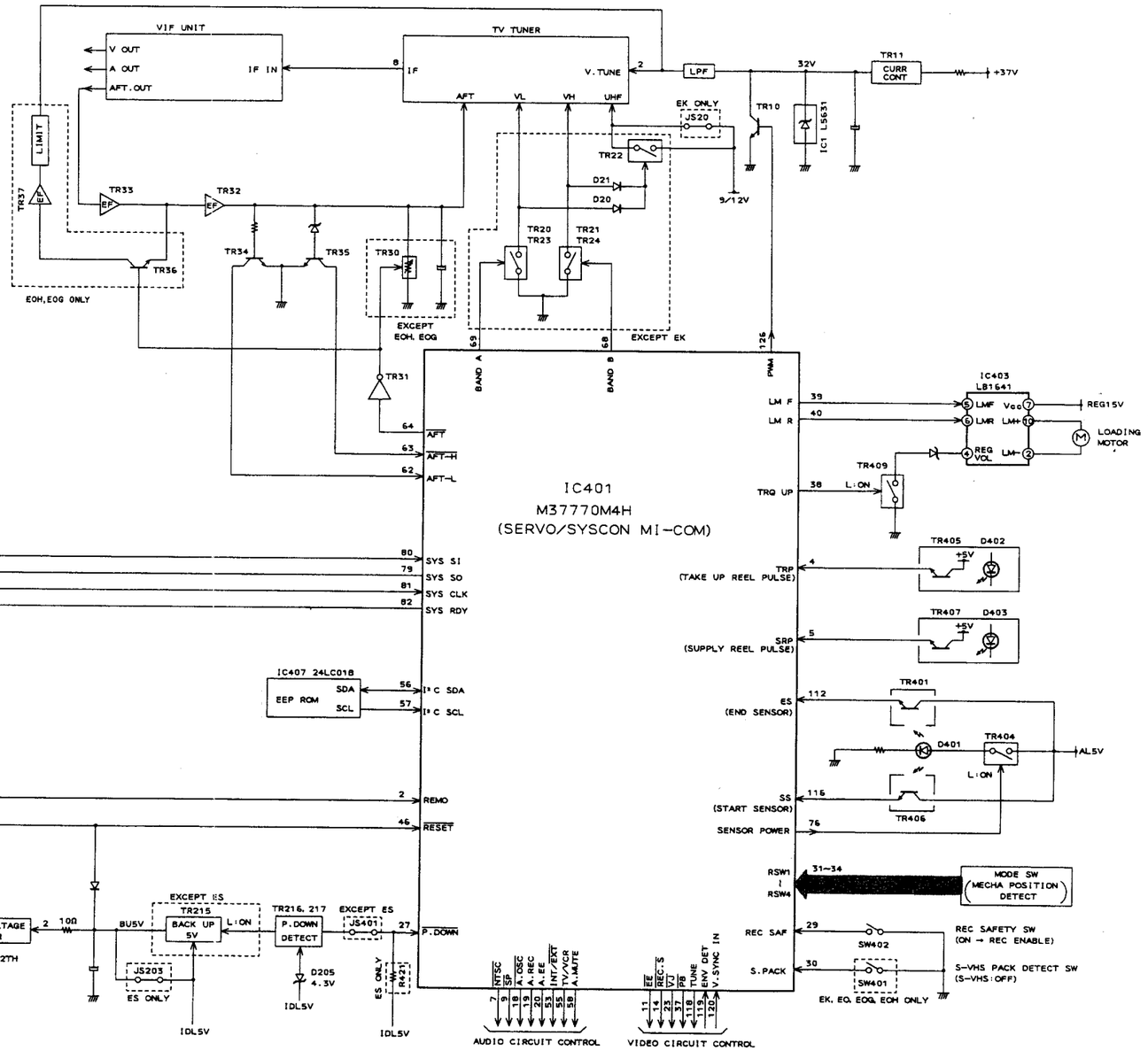
A1

MODE SWITCH TRUTH TABLE

MODE / OUTPUT	EJECT	STOP (TAPE LOADED)	PAUSE/PLAY	PLAY	REVIEW	CUE	FF	REW	POWER OFF (WITH CASSETTE)
RSW 4	H (5V)	H	H	H	H	H	L	L	H
RSW 3	H (5V)	L	H	L	H	L	L	L	L
RSW 2	L	H	H	H	L	H	H	H	L
RSW 1	L	H	L	H	H	H	H	L	H



OPERATION PCB

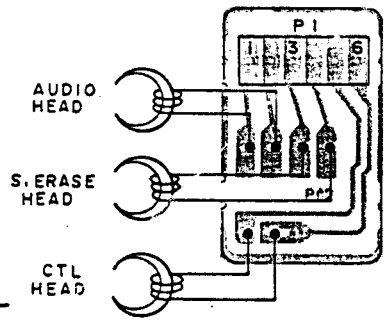


MAIN PCB

ABX-A/E SERIES
OPERATION & SYSCON
BLOCK DIAGRAM

No.4-4 V118254M

A1



A/C HEAD PCB
V1102B5120(J1)

DRUM MOTOR
SDV-0302A

DM.POW	1	1	DM.POW
DM.CONT	2	2	DM.CONT
DM.PG	3	3	DM.PG
M.GND	4	4	M.GND
M.GND	5	5	M.GND
DM.FG	6	6	DM.FG

P3

PRE AMP PCB
V1182A5020

WF1

FE.GND	1
FE.H	2

P1

NC	1	1	NC
CH1-REC	2	2	CH1-REC
CH1-PB	3	3	CH1-PB
NC	4	4	NC
CH2-PB	5	5	CH2-PB
CH2-REC	6	6	CH2-REC

WF101

P1

A/C REC	1	1	A/C REC
A/C PB	2	2	A/C PB
H.GND	3	3	H.GND
SE.H	4	4	SE.H
CTL-	5	5	CTL-
CTL+	6	6	CTL+

P2

ENV.DET	V-SWP	REC.S	GND	PB.C	REC.C	PB.Y	AL5V	REC.Y	
9	8	7	6	5	4	3	2	1	

P4

DM.FG	M.GND	M.GND	DM.PG	DM.CONT	DM.POW	FE.H	SE.H	H.GND	SP	A.OUT	A.GND	IDL9V	A.IN	A.EE	A.REC	MUTE	CTL-	CTL+
19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ENV.DET	V-SWP	REC.S	GND	PB.C	REC.C	PB.Y	AL5V	REC.Y										

P601

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DM.FG	M.GND	M.GND	DM.PG	DM.CONT	DM.POW	FE.H	SE.H	H.GND	SP	A.OUT	A.GND	IDL9V	A.IN	A.EE	A.REC	MUTE	CTL-	CTL+

P301

EOH (Y2) ONLY

DECODER (A) PCB
V1182A505A

R.E.V.IN	1	1	
A.GND	2	2	
R.E.A.IN	3	3	
A.GND	4	4	
NC	5	5	
A.GND	6	6	
EXT.V.IN	7	7	
GND	8	8	
EXT.A.IN	9	9	
V.GND	10	10	

WF1

TV.V.OUT	1	1	
V.GND	2	2	
DEC.V.IN	3	3	
IDL12V	4	4	
DEC.V.OUT	5	5	
D.CTL.12V	6	6	
TV.A.OUT	7	7	
A.GND	8	8	
DEC.A.IN	9	9	
$\overline{TV}$/VCR	10	10	
DEC.A.OUT	11	11	

WF2

DECODER (B) PCB
V1182A505B

P31

R.A.IN	14	1	R.A.IN
$\overline{TV}$/VCR	13	2	$\overline{TV}$/VCR
INT.A.IN	12	3	INT.A.IN
A.GND	11	4	A.GND
INT.V.IN	10	5	INT.V.IN
A.GND	9	6	A.GND
A.OUT	8	7	A.OUT
V.GND	7	8	V.GND
R.V.IN	6	9	R.V.IN
GND	5	10	GND
V.OUT	4	11	V.OUT
IDL12V	3	12	IDL12V
INT/$\overline{EXT}$	2	13	INT/$\overline{EXT}$
NC	1	14	NC

P102

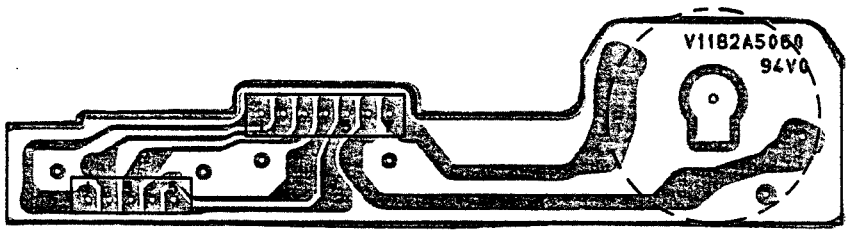
G215EK, G215EOH (Y1), EOG ONLY

VPS/PDC PCB
V1182A5040

P210

I²C SDA	1	1	I²C SDA
I²C SCL	2	2	I²C SCL
D.GND	3	3	D.GND
IDL5V	4	4	IDL5V
VPT.IN	5	5	VPT.IN

P602



LM/MS PCB V1182A5060

P402

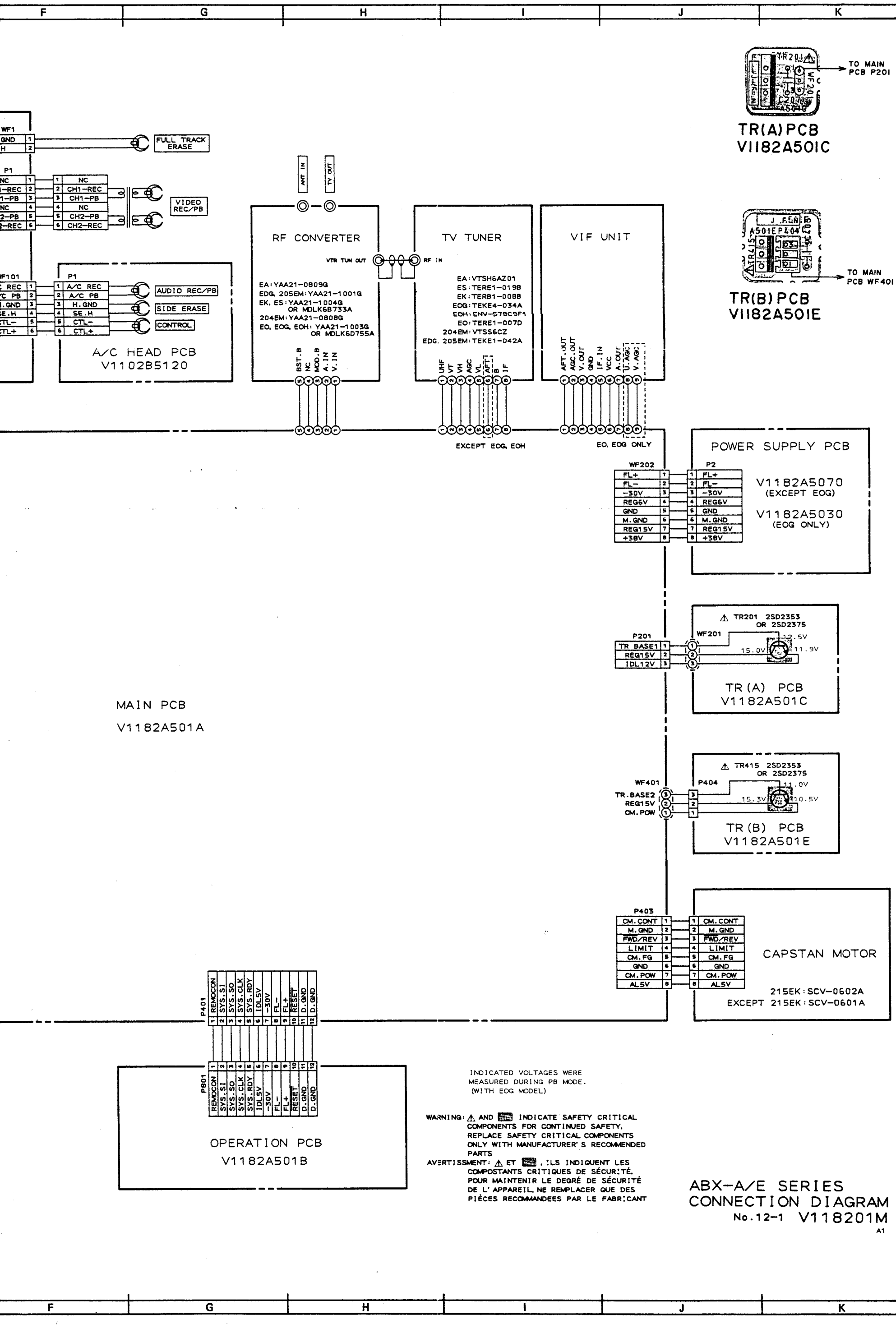
1	2	3	4	5	6	7	
RSW 1	RSW 2	D.GND	RSW 4	RSW 3	LM+	LM-	

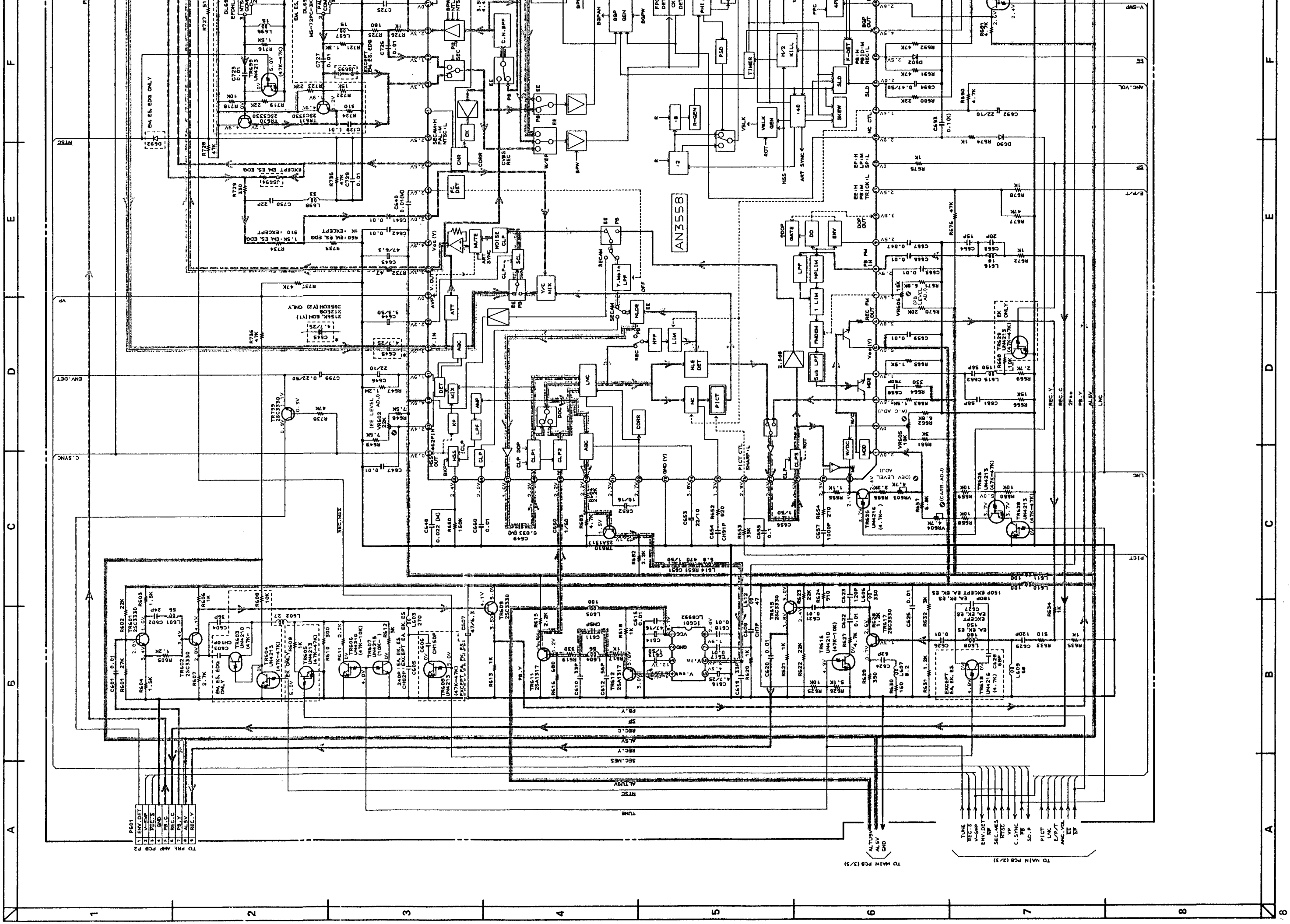
MODE SELECTOR SW

1	RSW 1
2	RSW 2
3	D.GND
4	RSW 4
5	RSW 3

LM/MS PCB
V1182A5060

LOADING MOTOR


TO MAIN PCB P201
TR(A) PCB V1182A501C
TO MAIN PCB WF401
TR(B) PCB V1182A501E
WF1
GND
H
FULL TRACK ERASE
P1
NC
1-REC
1-PB
NC
2-PB
2-REC
VIDEO REC/PB
WF101
REC
PB
GND
SE.H
CTL-
CTL+
P1
A/C REC
A/C PB
H.GND
SE.H
CTL-
CTL+
AUDIO REC/PB
SIDE ERASE
CONTROL
A/C HEAD PCB V1102B5120
ANT IN
TV OUT
RF CONVERTER
VTR TUN OUT
RF IN
EA:YAA21-0809G
EDG, 205EM:YAA21-1001G
EK, ES:YAA21-1004G OR MDLK6B733A
204EM:YAA21-0808G
EO, EOG, EOH:YAA21-1003G OR MDLK6D755A
BST.B
NC
MOD.B
A.IN
V.IN
TV TUNER
EA:VTSH6AZ01
ES:TERE1-019B
EK:TERB1-008B
EOG:TEKE4-034A
EOH:ENV-57BC9F1
EO:TERE1-007D
204EM:VTSS6CZ
EDG. 205EM:TEKE1-042A
UHF
VT
VH
AGC
VL
AFT
B
IF
VIF UNIT
AFT.OUT
AGC.OUT
V.OUT
GND
IF.IN
VCC
A.OUT
U.AGC
V.AGC
EXCEPT EOG, EOH
EO, EOG ONLY
POWER SUPPLY PCB
WF202
FL+
FL-
-30V
REG6V
GND
M.GND
REG15V
+38V
P2
V1182A5070 (EXCEPT EOG)
V1182A5030 (EOG ONLY)
P201
TR BASE1
REG15V
IDL12V
TR201 2SD2353 OR 2SD2375
WF201
12.5V
15.0V
11.9V
TR (A) PCB V1182A501C
WF401
TR.BASE2
REG15V
CM.POW
P404
TR415 2SD2353 OR 2SD2375
11.0V
15.3V
10.5V
TR (B) PCB V1182A501E
MAIN PCB
V1182A501A
P403
CM.CONT
M.GND
FWD/REV
LIMIT
CM.FG
GND
CM.POW
ALSV
CAPSTAN MOTOR
215EK:SCV-0602A
EXCEPT 215EK:SCV-0601A
P401
REMOCON
SYS.SI
SYS.SO
SYS.CLK
SYS.RDY
IDLSV
-30V
FL-
FL+
RESET
D.GND
D.GND
P801
OPERATION PCB V1182A501B
INDICATED VOLTAGES WERE MEASURED DURING PB MODE. (WITH EOG MODEL)
WARNING: ⚠ AND ▭ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS
AVERTISSMENT: ⚠ ET ▭, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ, POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT
ABX-A/E SERIES CONNECTION DIAGRAM
No.12-1 V118201M
A1


AN3558
TO PRE AMP PCB P2
TO MAIN PCB (3/5)
TO MAIN PCB (2/5)
TUNE
SEC.MES
REC.Y
REC.C
ALSV
PB.Y
SP
EE/P/T
ANC.VOL
LNC
PICT
NTSC
ALTSV
SECAM
EXCEPT EM ES EDG
EM ES EDG ONLY
EXCEPT EA EK ES
EA EK ES ONLY
EA EK ES EXCEPT EK ES
EK ES ONLY
EA EK ES EXCEPT EK ES
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EA EK ES ONLY
EA EK ES EXCEPT EK ES
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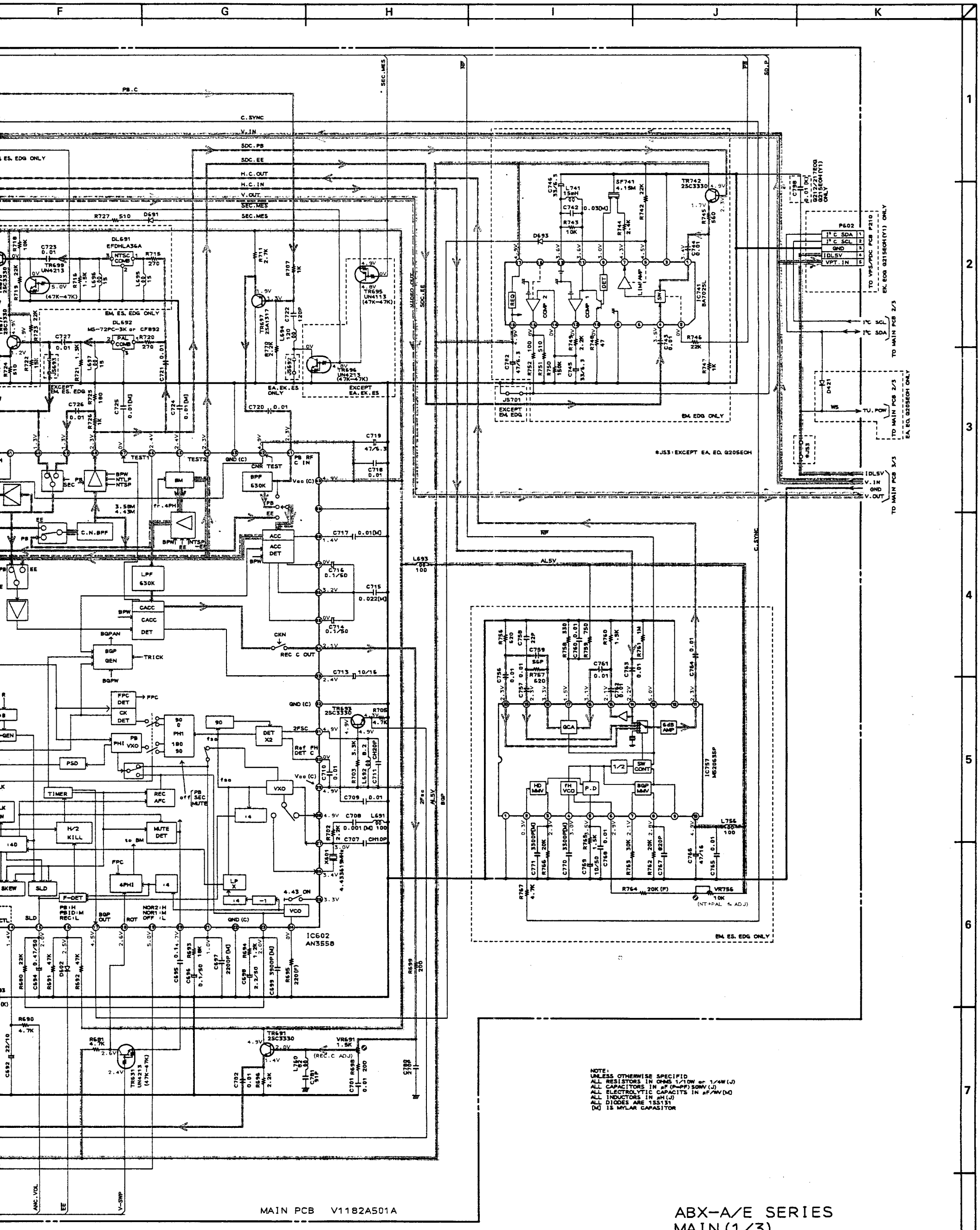
EA EK ES EXCEPT EK ES



MAIN PCB V1182A501A

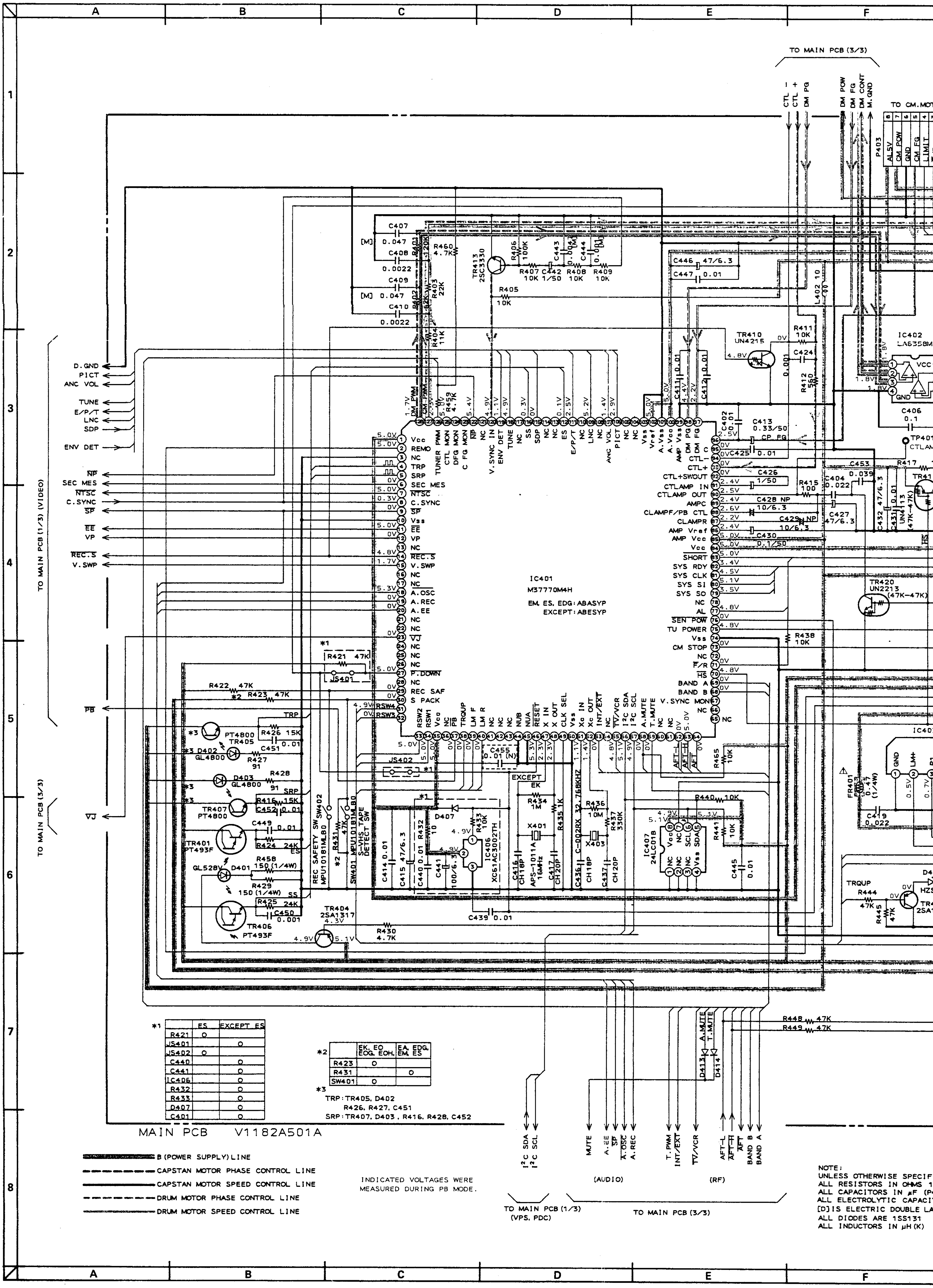
B (POWER SUPPLY) LINE
PB Y SIGNAL LINE
REC Y SIGNAL LINE
PB CHROMA SIGNAL LINE
REC CHROMA SIGNAL LINE

INDICATED VOLTAGES WERE MEASURED DURING PB MODE.

NOTE:
UNLESS OTHERWISE SPECIFID
ALL RESISTORS IN OHMS 1/10W or 1/4W (J)
ALL CAPACITORS IN μF (P=PF) 50WV (J)
ALL ELECTROLYTIC CAPACITS IN μF/WV [M]
ALL INDUCTORS IN μH (J)
ALL DIODES ARE 1SS131
[M] IS MYLAR CAPASITOR

ABX-A/E SERIES
MAIN (1/3)
(VIDEO BLK)
SCHEMATIC DIAGRAM
No.12-2 V118202M

A1


TO MAIN PCB (3/3)
CTL −
CTL +
DM PG
DM POW
DM FG
DM CONT
M.GND
TO CM.MOT
P403
AL5V
CM POW
GND
CM FG
LIMIT
D.GND
PICT
ANC VOL
TUNE
E/P/T
LNC
SDP
ENV DET
NP
SEC MES
NTSC
C.SYNC
SP
EE
VP
REC.S
V.SWP
PB
VJ
TO MAIN PCB (1/3) (VIDEO)
TO MAIN PCB (3/3)
C407 0.047 [M]
C408 0.0022
C409 0.047 [M]
C410 0.0022
R401 120K
R402 62K
R403 22K
R404 11K
R460 4.7K
R459 4.7K
TR413 2SC3330
R406 100K
R407 10K
C442 1/50
R408 10K
R409 10K
C443 0.047 [M]
C444 0.01 [M]
R405 10K
C446 47/6.3
C447 0.01
L402 10
TR410 UN4215
R411 10K
C424 0.001
R412 560
C411 0.01
C412 0.01
IC402 LA6358M
C406 0.1
TP401 CTLAMP
C402 0.01
C413 0.33/50
C425 0.01
C426 1/50
C428 NP 10/6.3
C429 NP 10/6.3
C430 0.1/50
R415 100
C404 0.022
C453 0.039
C427 47/6.3
C432 47/6.3
C431 0.01
R417
UN4113 (47K−47K)
TR420 UN2213 (47K−47K)
R438 10K
IC401
M37770M4H
EM, ES, EDG: ABASYP
EXCEPT: ABESYP
Vcc
REMO
NC
TRP
SRP
SEC MES
NTSC
C.SYNC
SP
Vss
EE
VP
NC
REC.S
V.SWP
NC
NC
A.OSC
A.REC
A.EE
NC
NC
VJ
NC
NC
NC
P.DOWN
NC
REC SAF
S PACK
RSW4
RSW3
RSW2
RSW1
Vcc
NC
PB
TRQUP
LM F
LM R
NC
NC
NC
NUB
NUA
RESET
X IN
X OUT
CLK SEL
Vss
Xc IN
Xc OUT
INT/EXT
NC
TV/VCR
I²C SDA
I²C SCL
A.MUTE
T.MUTE
NC
NC
NC
V.SYNC MON
BAND B
BAND A
HS
F/R
NC
CM STOP
Vss
TU POWER
SEN POW
AL
NC
SYS SO
SYS SI
SYS CLK
SYS RDY
SHORT
Vcc
AMP Vcc
AMP Vref
CLAMPR
CLAMPF/PB CTL
AMPC
CTLAMP OUT
CTLAMP IN
CTL+SWOUT
CTL+
CTL−
C
DM FG
DM PG
AMP Vss
A.Vcc
A.Vss
Vref
Vss
NC
NC
PICT
ANC VOL
NC
LNC
NC
E/P/T
ES
NC
NC
SDP
SS
NC
TUNE
ENV DET
V.SYNC IN
NC
NP
C FG MON
DFG MON
CTL MON
TUNER PWM
CM PWM
DM PWM
R421 47K
JS401
R422 47K
R423 47K
TR405 PT4800
R426 15K
C451 0.01
D402 GL4800
R427 91
D403 GL4800
R428 91
TR407 PT4800
R416 15K
C452 0.01
TR401 PT493F
C449 0.01
R424 24K
D401 GL528V
R458 150 (1/4W)
R429 150 (1/4W)
TR406 PT493F
R425 24K
C450 0.001
TR404 2SA1317
R430 4.7K
REC SAFETY SW MPU10181MLB0 SW402
SW401 MPU10181MLB0 S-VHS TAPE DETECT SW
R431 47K
JS402
C455 0.01 (N)
C414 0.01
C415 47/6.3
C440 0.01
C441 100/6.3
R432 10
D407
R433 10K
IC406 XC61AC3002TH
EXCEPT EK
R434 1M
R435 1K
X401 APS-1011A 16MHz
C416 CH18P
C417 CH20P
C-002RX 32.768KHZ
R436 10M
R437 330K
X403
C436 CH18P
C437 CH20P
C439 0.01
IC407 24LC01B
R440 10K
R441 10K
C445 0.01
R465 10K
AFT−L
AFT−H
AFT
IC40
FR401 0.47 (1/4W)
C419 0.022
TRQUP
R444 47K
R445 47K
HZS
2SA
R448 47K
R449 47K
D413
D414
A.MUTE
T.MUTE
I²C SDA
I²C SCL
MUTE
A.EE
SP
A.OSC
A.REC
T.PWM
INT/EXT
TV/VCR
AFT−L
AFT−H
AFT
BAND B
BAND A
(AUDIO)
(RF)
TO MAIN PCB (1/3) (VPS, PDC)
TO MAIN PCB (3/3)

*1

	ES	EXCEPT ES
R421	O	
JS401		O
JS402	O	
C440		O
C441		O
IC406		O
R432		O
R433		O
D407		O
C401		O

*2

	EK, EO EOG, EOH,	EA, EDG, EM, ES
R423	O	
R431		O
SW401	O	

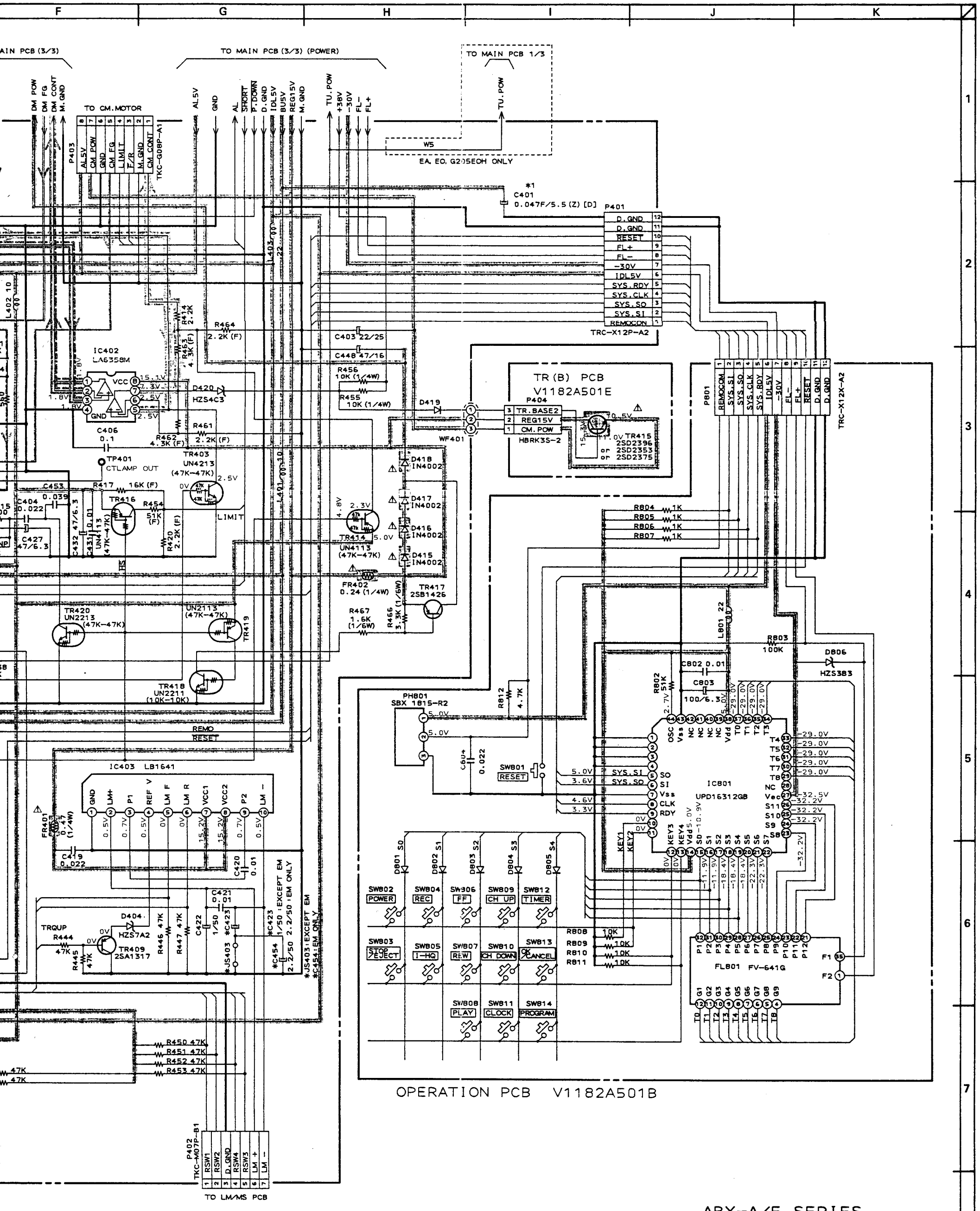
*3
TRP: TR405, D402
R426, R427, C451
SRP: TR407, D403, R416, R428, C452

MAIN PCB V1182A501A

B (POWER SUPPLY) LINE
CAPSTAN MOTOR PHASE CONTROL LINE
CAPSTAN MOTOR SPEED CONTROL LINE
DRUM MOTOR PHASE CONTROL LINE
DRUM MOTOR SPEED CONTROL LINE

INDICATED VOLTAGES WERE MEASURED DURING PB MODE.

NOTE:
UNLESS OTHERWISE SPECIF
ALL RESISTORS IN OHMS 1
ALL CAPACITORS IN μF (P
ALL ELECTROLYTIC CAPACI
[D] IS ELECTRIC DOUBLE LA
ALL DIODES ARE 1SS131
ALL INDUCTORS IN μH (K)



NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/10W OR 1/4W(J)
ALL CAPACITORS IN μF (P=PF) (J)
ALL ELECTROLYTIC CAPACITORS IN μF/WV(M)
[D]IS ELECTRIC DOUBLE LAYER CAPACITOR
ALL DIODES ARE 1SS131
ALL INDUCTORS IN μH(K)

WARNING: ⚠ AND ▬ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSMENT: ⚠ ET ▬, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

ABX-A/E SERIES MAIN (2/3) (SERVO/SYSCON BLK) & OPERATION SCHEMATIC DIAGRAM

No.12-3 V118203M

A1

* TU1	VTSH6AZ01	EA
	TERE1-019B	ES
	TER81-008B	EK
	VTSS6CZ	204EM
	ENV-57BC9F1	EOH
	TEKE4-034A	EOG
	TERE1-007D	EO
	TEKE1-042A	EOG, 205EM

* MD1	YAA21-08C3G	EA
	YAA21-08D8G	204EM
	YAA21-1003G OR MDLK6D755A	EO, EOG, EOH
	YAA21-1004G OR MDLK6B733A	EK, ES
	YAA21-1001G	EOG, 205EM

* IF1	KX EA	EA
	AX EOG	EOG, 205EM
	KX EK	EK
	KX EM	204EM
	KX EOH	EOH
	KX EOG	EO
	KX-TEK EOG	EOG
	KX ES	ES

WIRE ASSY	PIN-PIN L=120 E26-02-372	EA, EM, EOG, EOH, EDG ONLY
	PIN-PIN (MINI) 120MM E26-02-373	EXCEPT

*8	EO, EOG ONLY	
*10	EA ONLY	EK, 204EM ONLY
L70	1.0	0.68

WARNING: ⚠ AND ▬ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSMENT: ⚠ ET ▬ , ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

R220, R221	1.6	EM
	5.1	EA
	13.0	EK

R220 AND R221 NEED PAIRING WITH TRANS.

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/10W OR 1/4W (J)
ALL CAPACITORS IN μF (P=PF) 50WV (J)
ALL ELECTROLYTIC CAPACITORS IN μF/WV (M)
ALL INDUCTORS IN μH (K)
[M] IS MYLAR CAPACITOR

INDICATED VOLTAGES WERE MEASURED DURING PB MODE.
( ) : REC MODE (WITH EOG MODEL)

B (POWER SUPPLY) LINE
AUDIO PB SIGNAL LINE
AUDIO REC SIGNAL LINE
VIDEO PB SIGNAL LINE
VIDEO REC SIGNAL LINE
DRUM MOTOR PHASE CONTROL LINE
DRUM MOTOR SPEED CONTROL LINE

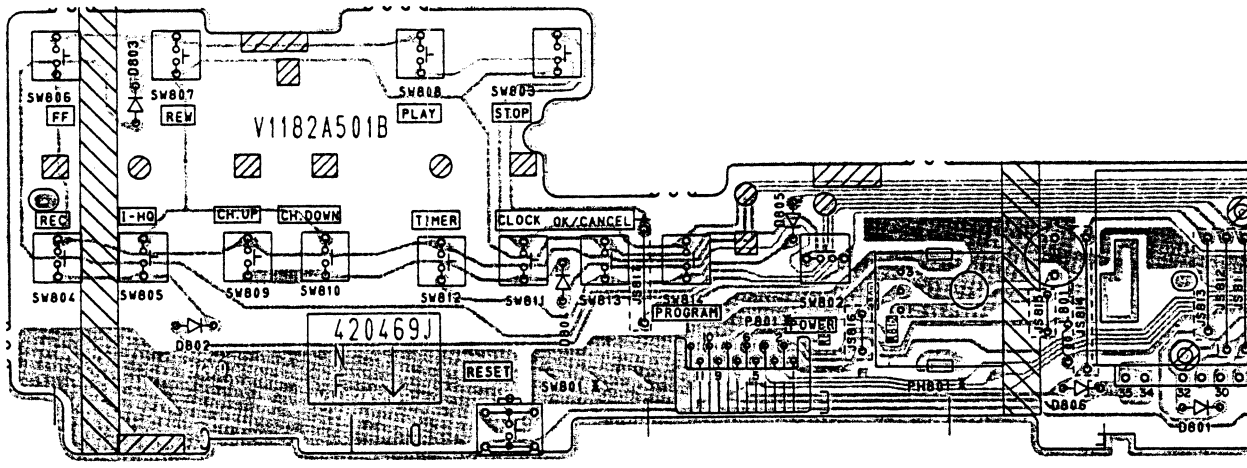
TO MAIN PCB 2/3 (SYSCON)

TO POWER SUPPLY PCB P2

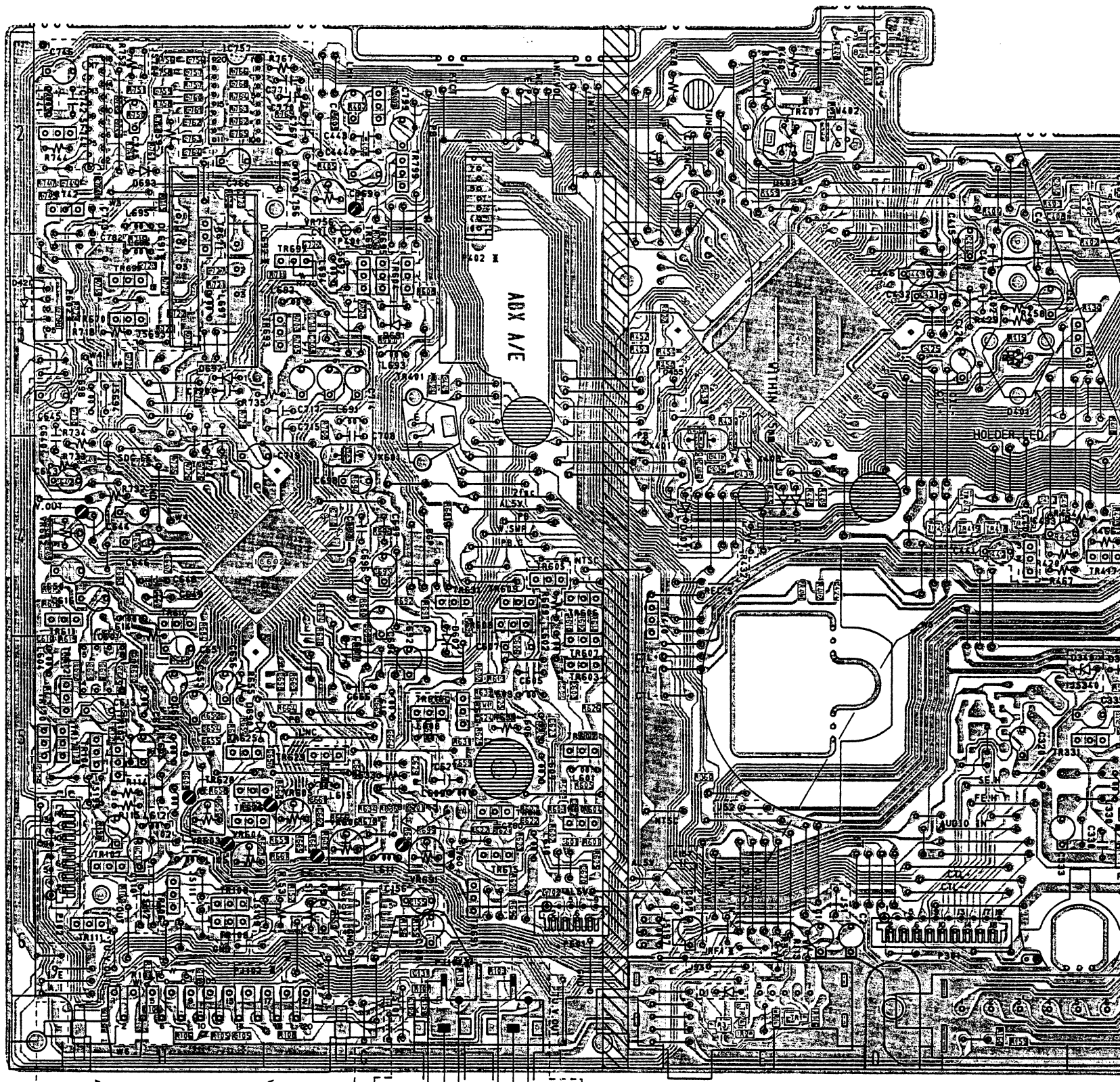
INDICATED VOLTAGES WERE MEASURED DURING PB MODE.
( ): REC MODE (WITH EOG MODEL)

ABX-A/E SERIES
MAIN (3/3)
(RF, POWER & I/O BLK)
SCHEMATIC DIAGRAM
No.12-4 V118204M

A1



OPERATION PCB V1182A501B

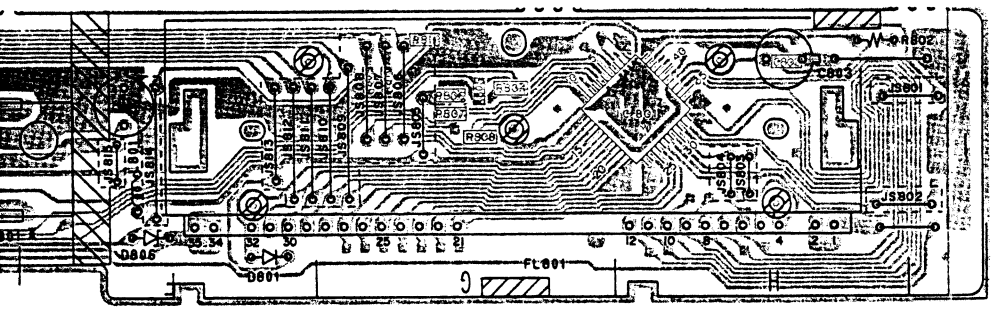


MAIN PCB V1182A501A

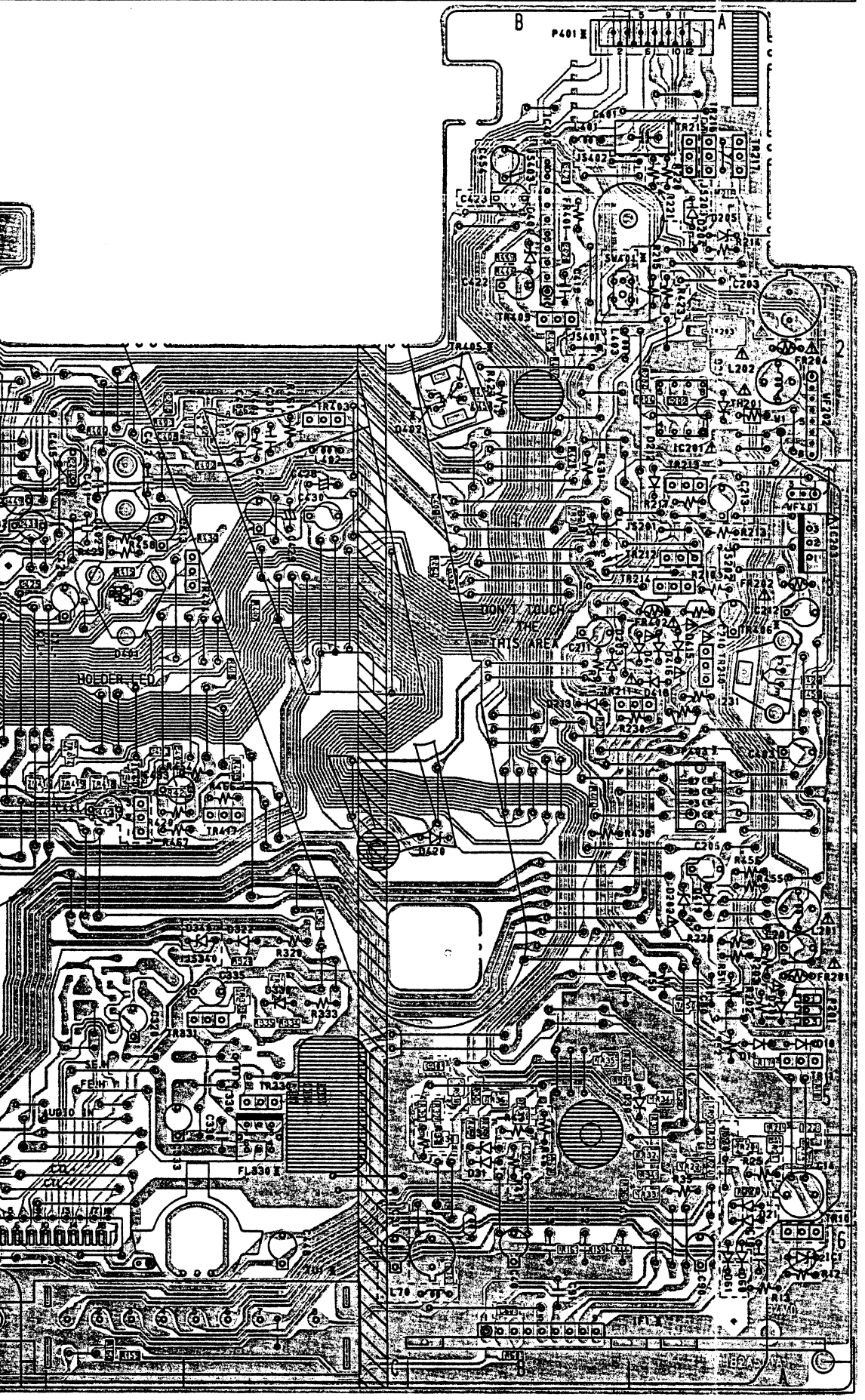
W1: EOG ONLY
W3: EM, EDG ONLY
W5: EA, EO, G205, 211EOH, G215EOH (Y_2)
W6: EOG ONLY

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPO
REPLACE SAFETY CRITICAL COMPONEN
RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS
POUR MAINTENIR LE DEGRÉ DE SÉCURI
NE REMPLACER QUE DES PIÈCES RECO



V1182A501B



V1182A501A

PRINCIPAL PARTS LOCATION

ICs

IC1	A6
IC102	G6
IC201	A2
IC203	A3
IC401	E3
IC402	C2
IC403	B1,2
IC406	D4
IC407	D,H2
IC601	H5
IC602	G,H4
IC741	H2
IC757	H2

WFs

WF202	A2
WF401	A3

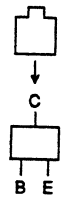
CONNECTORs

P102	H5,6
P201	A5
P301	D6
P401	A,B1
P402	F2
P403	A4
P601	F6
P602	H3

TRANSISTORs

TR1	E6
TR2	E6
TR3	E6
TR10	A6
TR11	A5
TR20	A6
TR21	A6
TR22	A6
TR23	A6
TR24	A6
TR30	B6
TR31	B6
TR32	A6
TR33	A6
TR34	A5
TR35	B5
TR36	B5
TR37	B5
TR50	A5
TR102	H5
TR104	H5
TR106	H6
TR107	H6
TR108	H6
TR109	H6
TR111	H6
TR170	H5
TR171	H5
TR203	A2
TR210	A3
TR211	A,B4
TR212	A3
TR213	A3
TR214	A3
TR215	A1
TR216	A1
TR217	A1
TR203	A2
TR330	C5
TR331	C5
TR332	C5
TR333	C5
TR403	C2
TR404	C3
TR409	B2
TR410	F4
TR413	G2
TR414	D4
TR416	D4
TR417	C4
TR418	D4
TR419	D4
TR420	D4
TR601	F5
TR602	F5
TR603	F5
TR604	G3
TR605	F4
TR606	F4
TR607	F5
TR608	F4
TR610	H4
TR611	H4
TR612	H5
TR615	F6
TR616	F5
TR617	F,G5
TR618	G5
TR625	H5
TR626	H5
TR628	H5
TR629	G5
TR631	G4
TR632	G5
TR691	F6
TR693	G3
TR696	G3
TR670	H3
TR671	H2,3
TR691	F6
TR693	G3
TR695	G3
TR696	G3
TR699	H3
TR742	H2
TR799	G2

SINGLE CHIP TRANSISTOR



WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER. REFER TO SCHEMATIC DIAGRAMS FOR PERTINENT PARTS INFORMATION.

21PIN DECODER

PJ2 M1817-A

JS1

TR6 2SA1317

TR5 2SC3330

TR7 2SC3330

R25 180

R26 680

R24 68

R27 2.4K

R28 680

R29 100K

R30 30K

C20 5.6P (CH)

C21 MS7 47/16

C99 47/16

IDL12V

C1 MS7 47/16

C2 0.01 (N)

L1 100

C3 47/16 MS7

R2 100K

R3 22K

R4 7.5K

TR1 2SA1317

C4 MS7 47/16

R5 75

R6 100K

R7 33K

R8 2.2K

TR2 2SC3330

R9 330

R10 130K

C8 MS7 4.7/50

C7 MS7 4.7/50

R11 100K

R12 47K

TR3 2SC3330

R13 4.7K

R14 330

C5 100P

C6 100P

C9 100P

C10 100P

WF3

GND

TO MAIN PCB 3/3 MD1

A.GND

V.GND

DECODER (A) PCB V1182A505A

WF2 AX DA-DB L-50 11P

TR31 UN4113 (47K-47K)

TR32 UN4213 (47K-47K)

R31 100K

L31 100

C31 47/16

C32 0.01 (N)

TR33 2SC3330

TR34 2SC3330

R32 3.3K

R33 1K

TR35 2SC3330

R34 180K

R35 180K

R36 4.7K

C33 1/50

C34 1/50

R37 91K

R38 150K

R67 100K

IC31 MC14066BCP

IC32 MC14066BCP

C39 1/50

TR36 UN4213 (47K-47K)

TR37 UN4113 (47K-47K)

TR38 2SC3330

R39 100K

R40 130K

R41 100K

R42 4.7K

P31 HLEM14S-1

14	13	12	11	10	9	8	7	6	5	4	3	2	1
R.A.IN	TV/VCR	INT.A.IN	GND	INT.V.IN	GND	A.OUT	GND	R.V.IN	GND	V.OUT	IDL12V	INT/EXT	N.C

TO MAIN PCB 3/3 P102

DECODER (B) PCB V1182A505B

B (POWER SUPPLY) LINE

AUDIO PB SIGNAL LINE

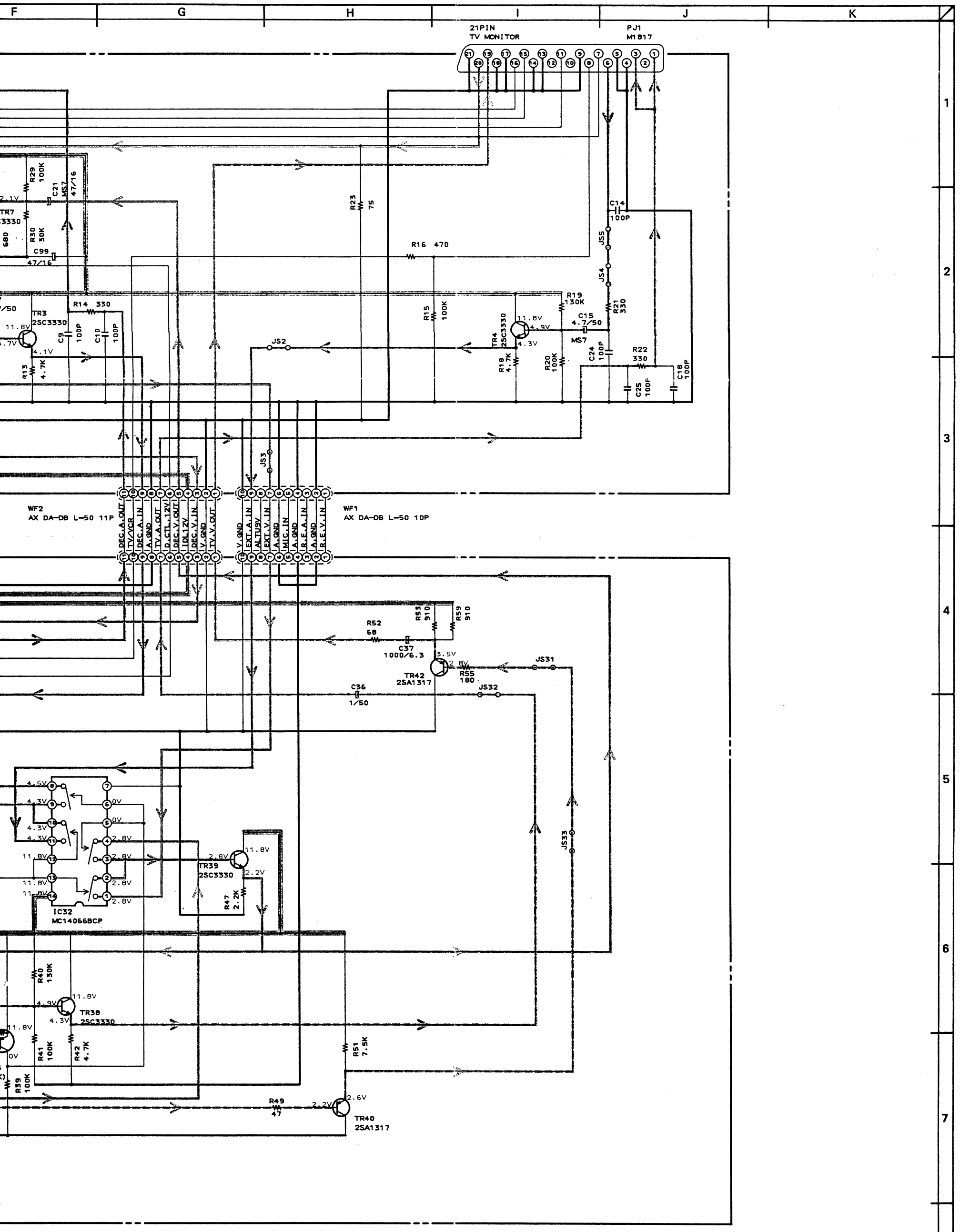
AUDIO REC SIGNAL LINE

VIDEO PB SIGNAL LINE

VIDEO REC SIGNAL LINE

INDICATED VOLTAGES WERE MEASURED DURING PB MODE.

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50WV(P=PF
ALL ELECTROLYTIC CAPACITORS IN
ALL INDUCTORS IN μH(K)

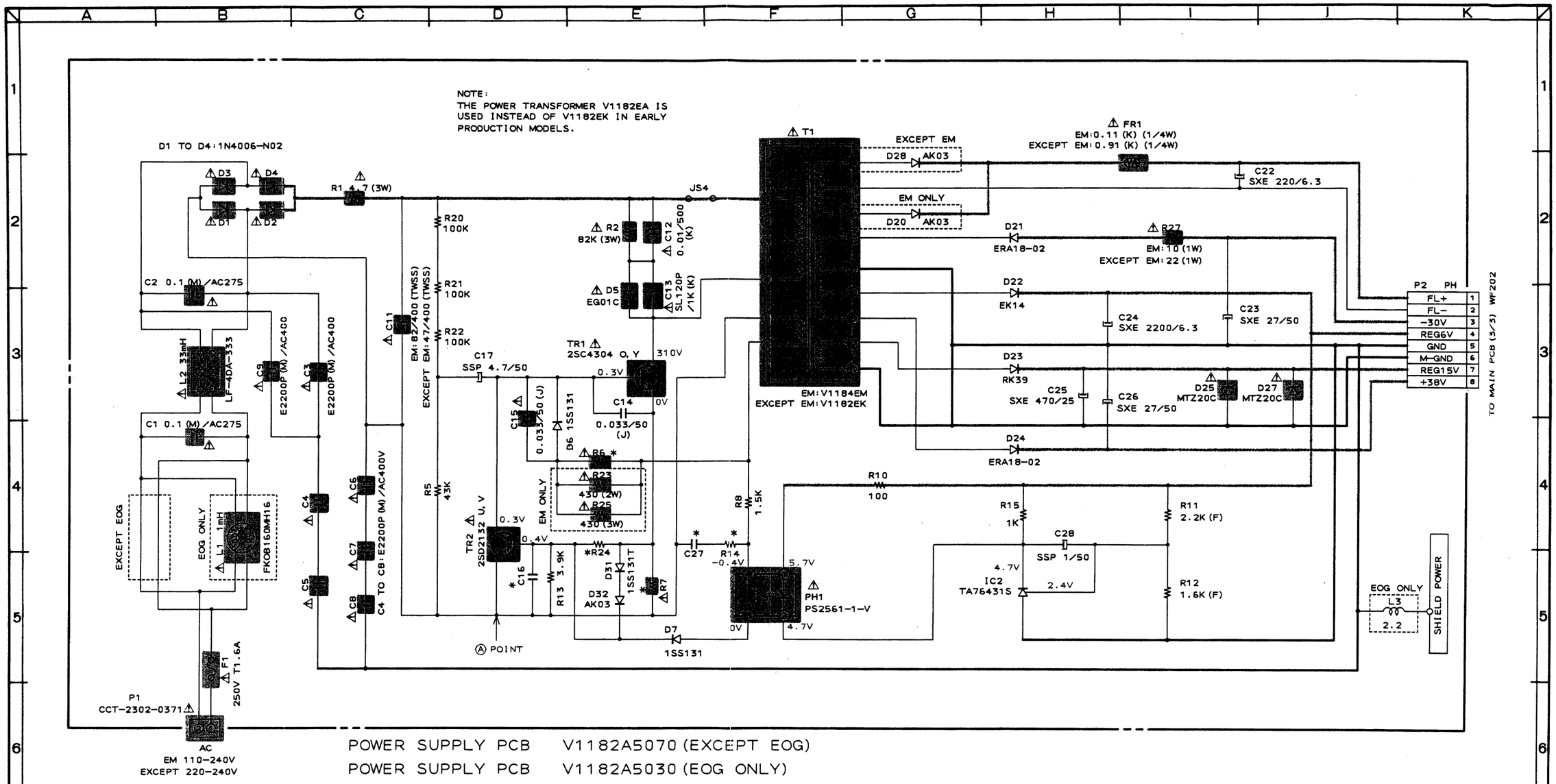


ESS OTHERWISE SPECIFIED
RESISTORS IN OHMS 1/4W (J)
CAPACITORS IN μF 50WV (P=PF) (K)
ELECTROLYTIC CAPACITORS IN μF/WV (M)
INDUCTORS IN μH (K)

VS-G211EOH (Y2)
VS-G205EOH (Y2)
VS-G215EOH (Y2)
DECODER
SCHEMATIC DIAGRAM

No.12-5 V118205M

A1



POWER SUPPLY PCB V1182A5070 (EXCEPT EOG)

POWER SUPPLY PCB V1182A5030 (EOG ONLY)

	*					
	R6	R7	R24	C16	R14	C27
EXCEPT EM	150 (2W)	1 (2W)	5.1K	X4700P (M)	1.5K	X1500P (M)
EM	430 (2W)	0.68 (2W)	3.9K	B1000P (K)	470	X4700P (M)

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF (P=PF) 16WV (M)
ALL ELECTROLYTIC CAPACITORS IN μF/WV (M)

WARNING: ⚠ AND ▓▓ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSMENT: ⚠ ET ▓▓, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ, POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

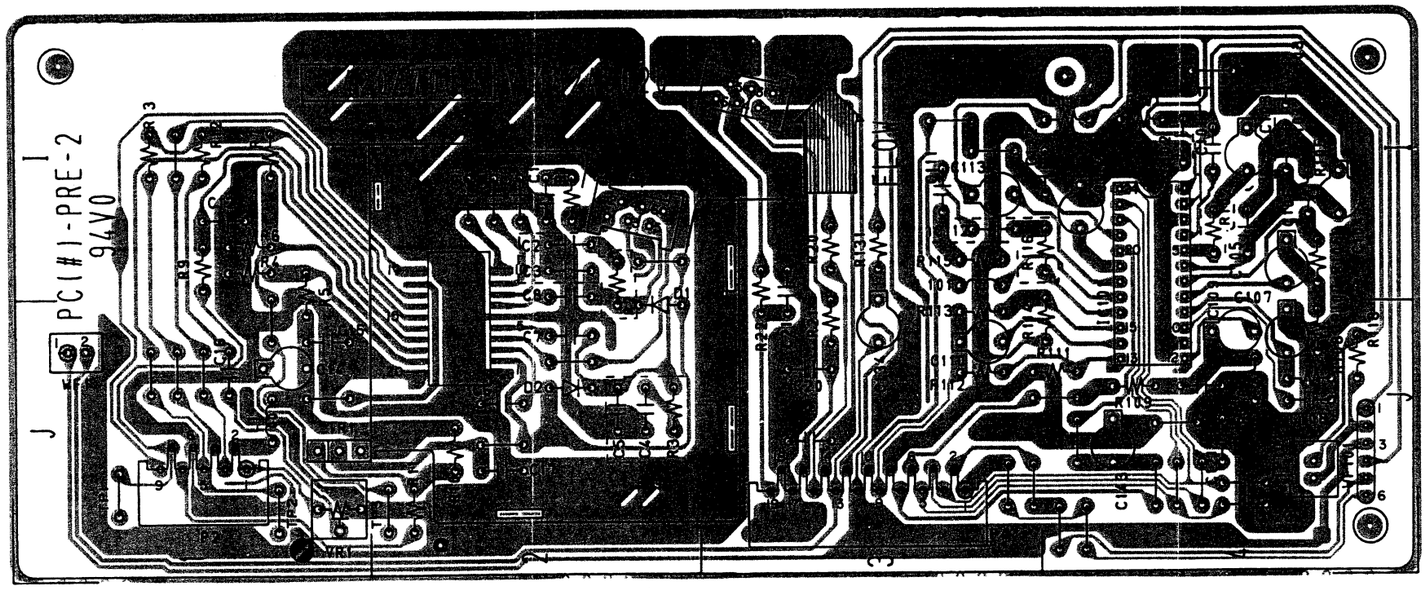
: B (POWER SUPPLY) LINE

*INDICATED VOLTAGES WERE MEASURED DURING E-E MODE.
THE DC VOLTMETER'S NEGATIVE INPUT WAS CONNECTED TO THE Ⓐ POINT WHEN THE PRIMARY SECTION WAS MEASURED.
*THE PRIMARY INPUT WAS AC 220V.

ABX-A/E SERIES POWER SUPPLY SCHEMATIC DIAGRAM

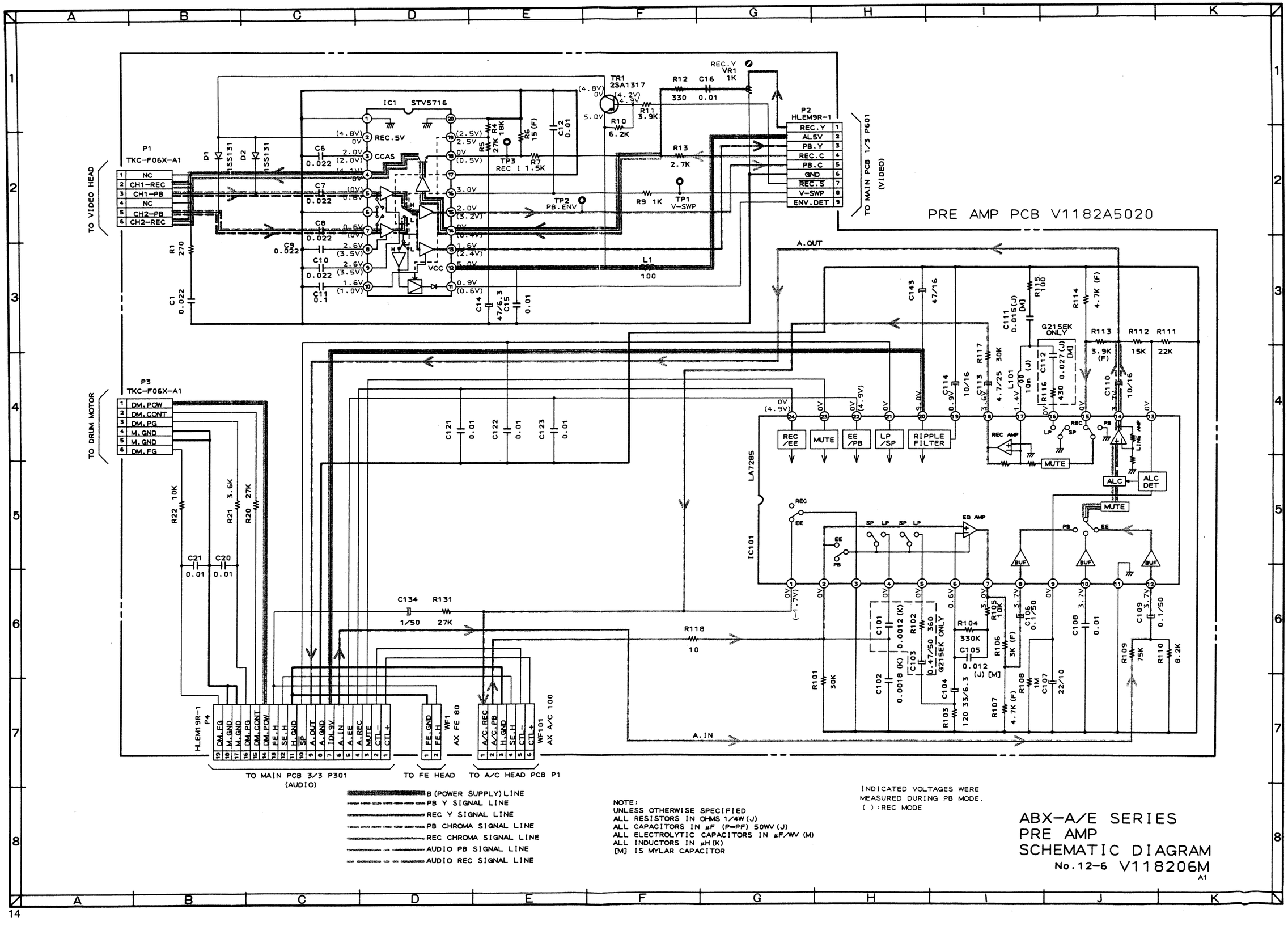
No.12-7 V118207M

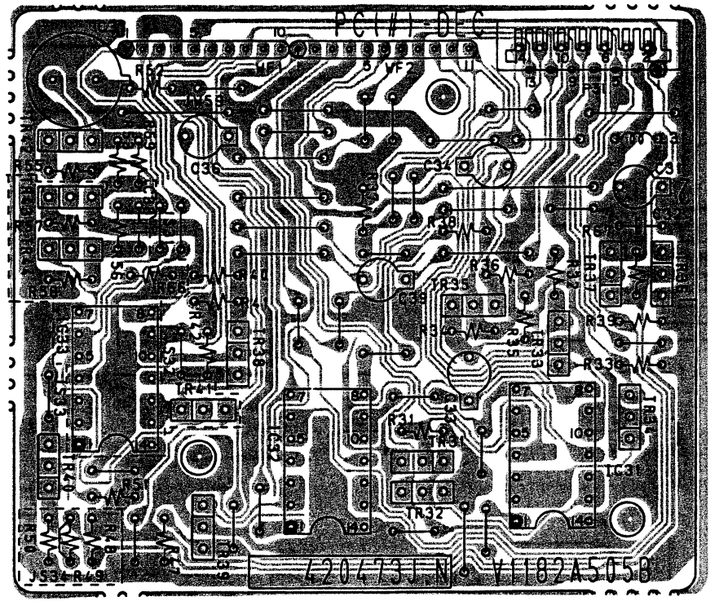
A3



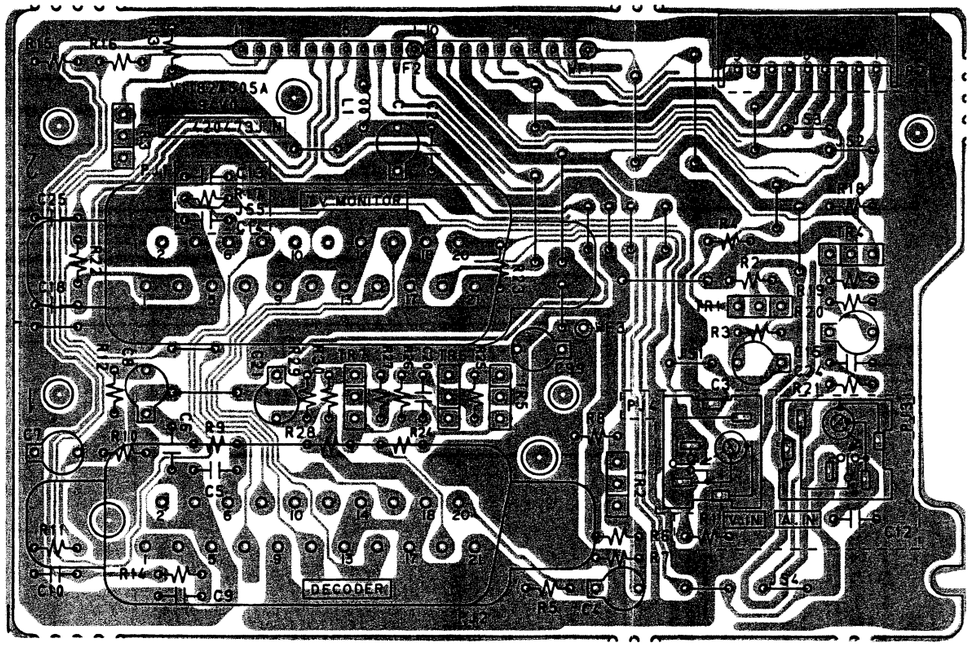
PRE AMP PCB V1182A5020

NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER. REFER TO SCHEMATIC DIAGRAMS FOR PERTINENT PARTS INFORMATION.


PRE AMP PCB V1182A5020
IC1 STV5716
TR1 2SA1317
VR1 1K
REC.Y
P1 TKC-F06X-A1
P2 HLEM9R-1
TO VIDEO HEAD
TO MAIN PCB 1/3 P601 (VIDEO)
REC.5V
CCAS
VCC
TP1 V-SWP
TP2 PB.ENV
TP3 REC I
A.OUT
A.IN
L1 100
P3 TKC-F06X-A1
TO DRUM MOTOR
LA7285
IC101
REC/EE
MUTE
EE/PB
LP/SP
RIPPLE FILTER
REC AMP
EQ AMP
LINE AMP
ALC
ALC DET
BUF
G215EK ONLY
HLEM19R-1 P4
WF1 AX FE 80
WF101 AX A/C 100
TO MAIN PCB 3/3 P301 (AUDIO)
TO FE HEAD
TO A/C HEAD PCB P1
B (POWER SUPPLY) LINE
PB Y SIGNAL LINE
REC Y SIGNAL LINE
PB CHROMA SIGNAL LINE
REC CHROMA SIGNAL LINE
AUDIO PB SIGNAL LINE
AUDIO REC SIGNAL LINE
NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF (P=PF) 50WV (J)
ALL ELECTROLYTIC CAPACITORS IN μF/WV (M)
ALL INDUCTORS IN μH (K)
[M] IS MYLAR CAPACITOR
INDICATED VOLTAGES WERE MEASURED DURING PB MODE.
( ) : REC MODE
ABX-A/E SERIES
PRE AMP
SCHEMATIC DIAGRAM
No.12-6 V118206M
A1

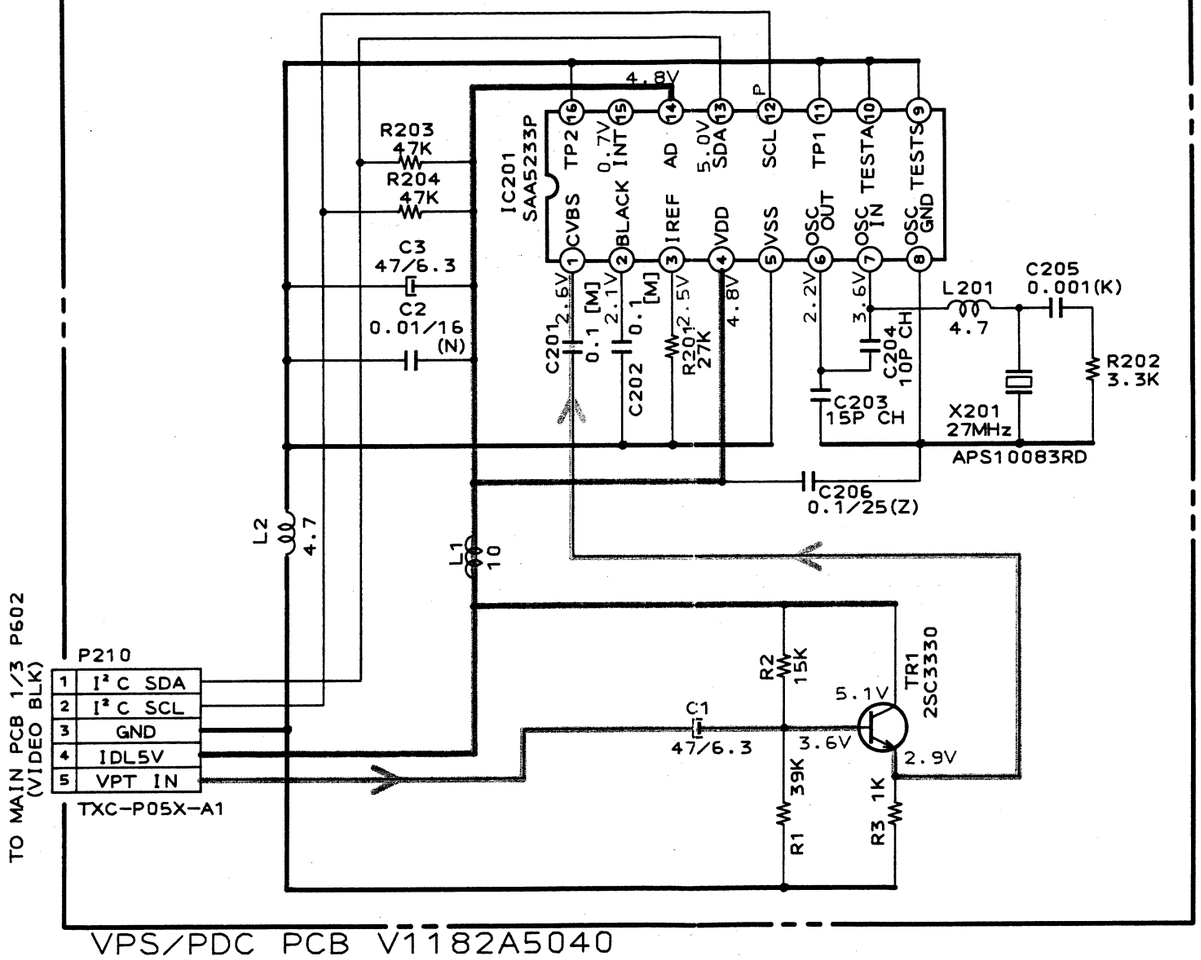


DECODER(B)PCB V1182A505B
(EOH(Y2) ONLY)



DECODER(A)PCB V1182A505A
(EOH(Y2) ONLY)

NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER.
REFER TO SCHEMATIC DIAGRAMS FOR PERTINENT
PARTS INFORMATION.



VPS/PDC PCB V1182A5040

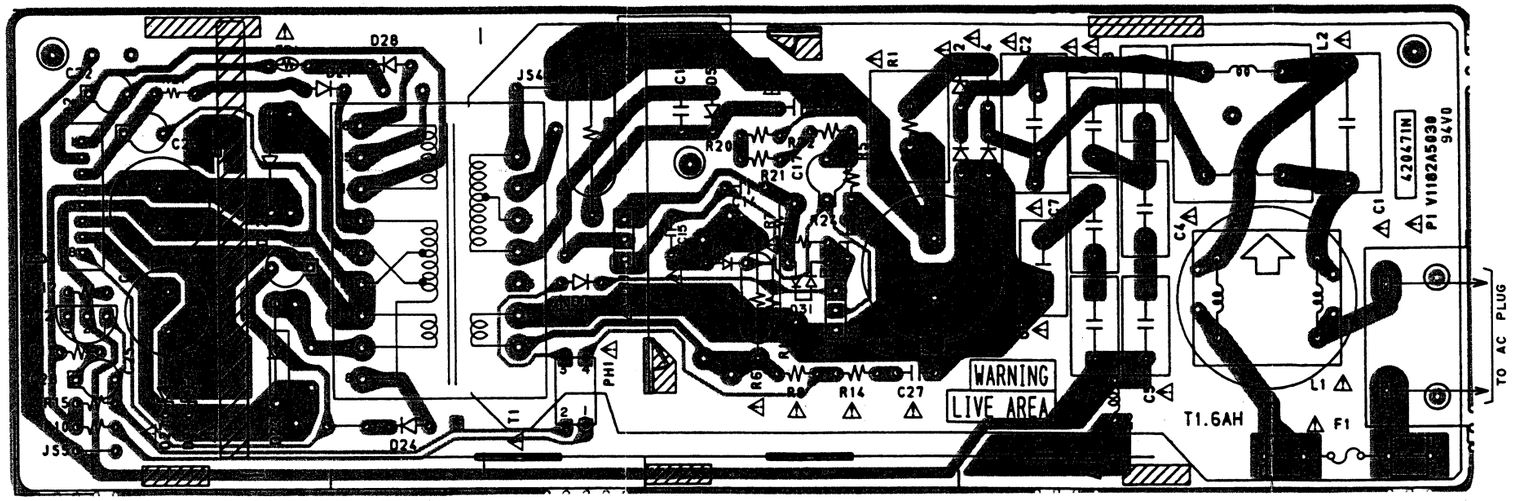
B (POWER SUPPLY) LINE

VIDEO SIGNAL LINE

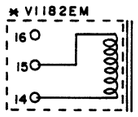
INDICATED VOLTAGES WERE MEASURED DURING E--E MODE.
(NO SIGNAL WAS BEING INPUT.)

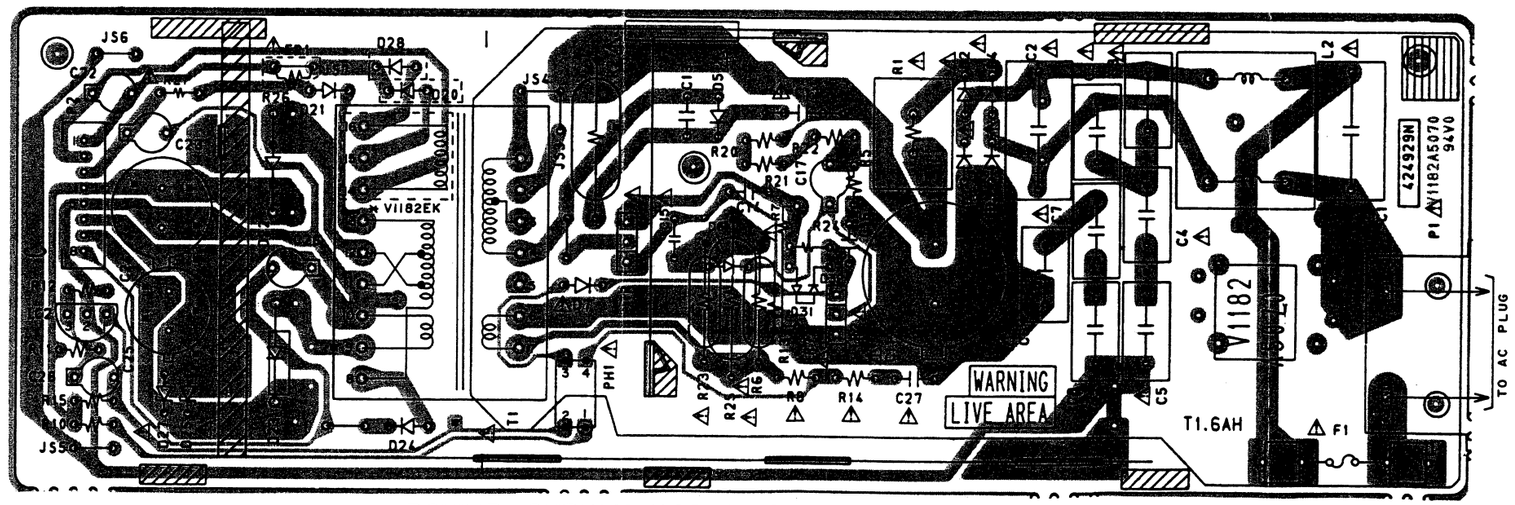
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF (P=PF) 50WV (J)
ALL ELECTROLYTIC CAPACITORS IN μF/WV (M)
ALL INDUCTORS IN μH (J)
[M] IS MYLAR CAPACITOR

VS-G215EK
VS-G212EOG
VS-G217EOG
VS-G215EOH (Y_1)
VPS/PDC
SCHEMATIC DIAGRAM
No.12-8 V118208M
A1



POWER SUPPLY PCB V1182A5030(EOG ONLY)



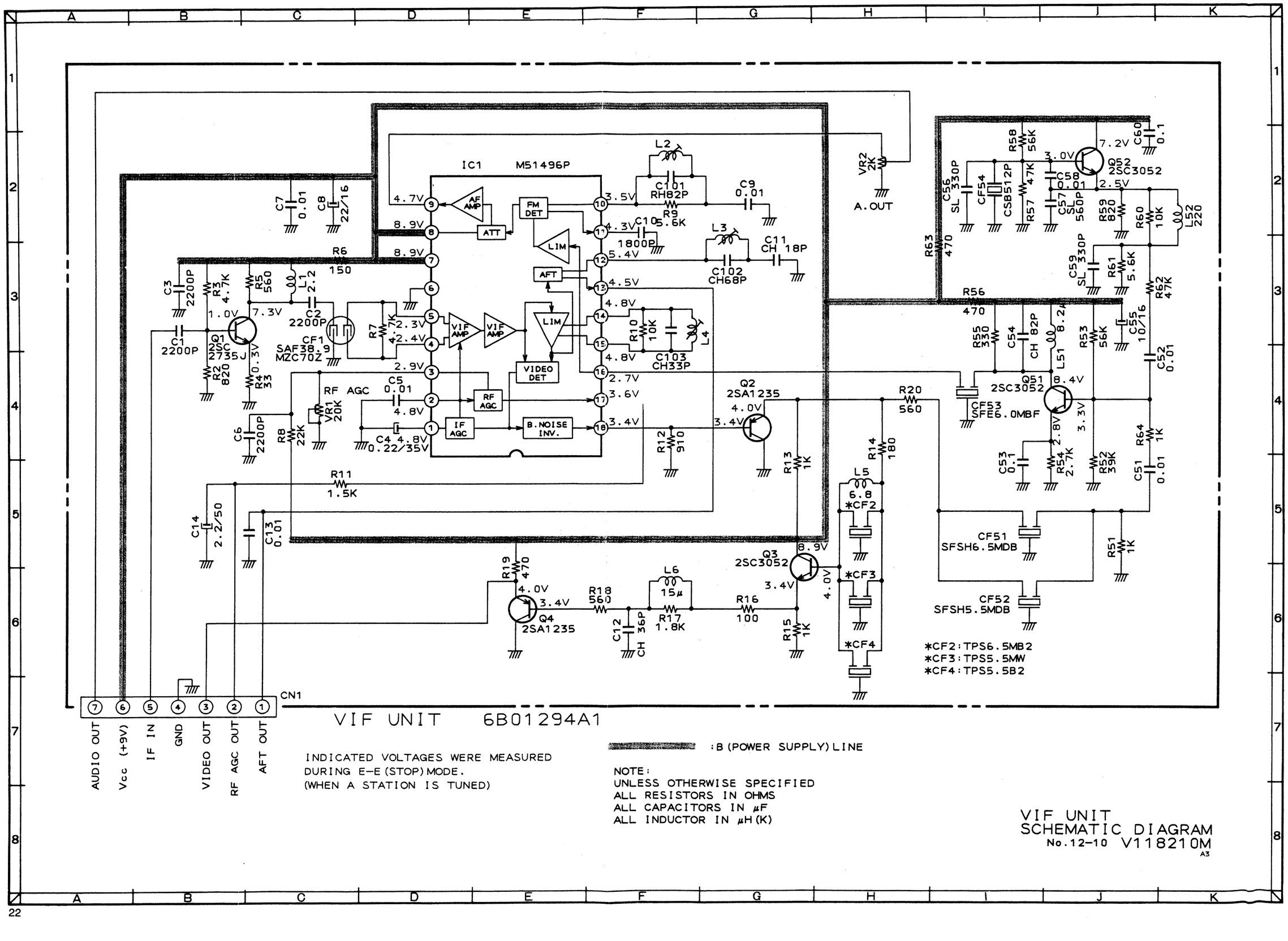


POWER SUPPLY PCB V1182A5070(EXCEPT EOG)

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER. REFER TO SCHEMATIC DIAGRAMS FOR PERTINENT PARTS INFORMATION.

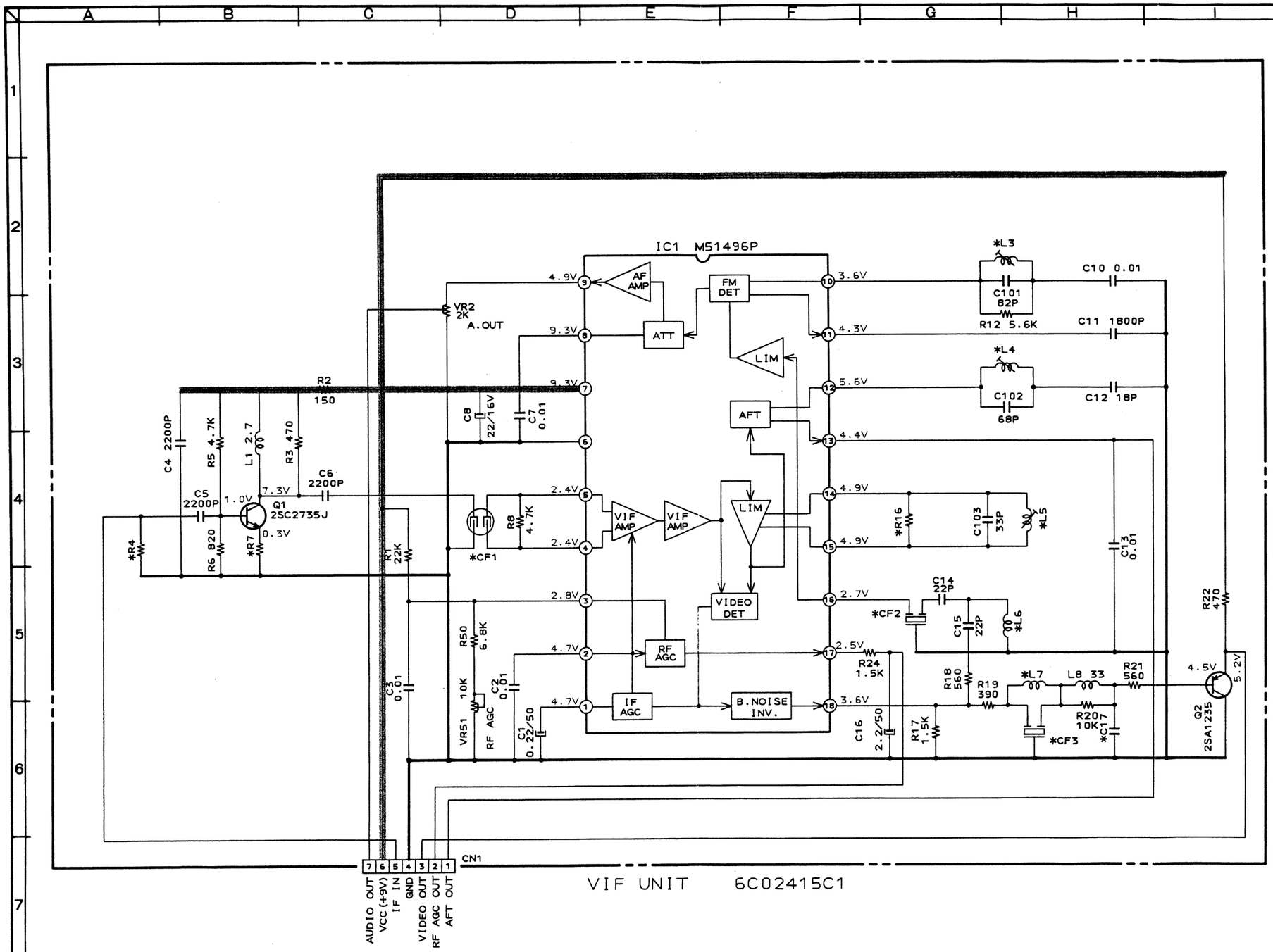


VIF UNIT 6B01294A1

VIF UNIT SCHEMATIC DIAGRAM

No.12-10 V118210M

A3



VIF UNIT 6C02415C1

*	EM	EOH	EK
CF1	SAF38.9 MZW70Z	SAF38.9 MZW70Z	SAF39.5 MZ70Z
CF2	SFE 5.5MBF	←	SFE 6.0MBF
CF3	TPS 5.5MB2	TPS 5.5MW	TPS 6.0MB2
L 3	6F16437 A1	←	6F16437 A2
L 4	6F16435 A1	←	←
L 5	6F16436 A1	←	←
L 6	18μ	←	15μ
L 7	18μ	15μ	←
R 4	100	←	180
R 7	22	←	←
R16	10K	47K	10K
C17	CH12P	←	CH15P

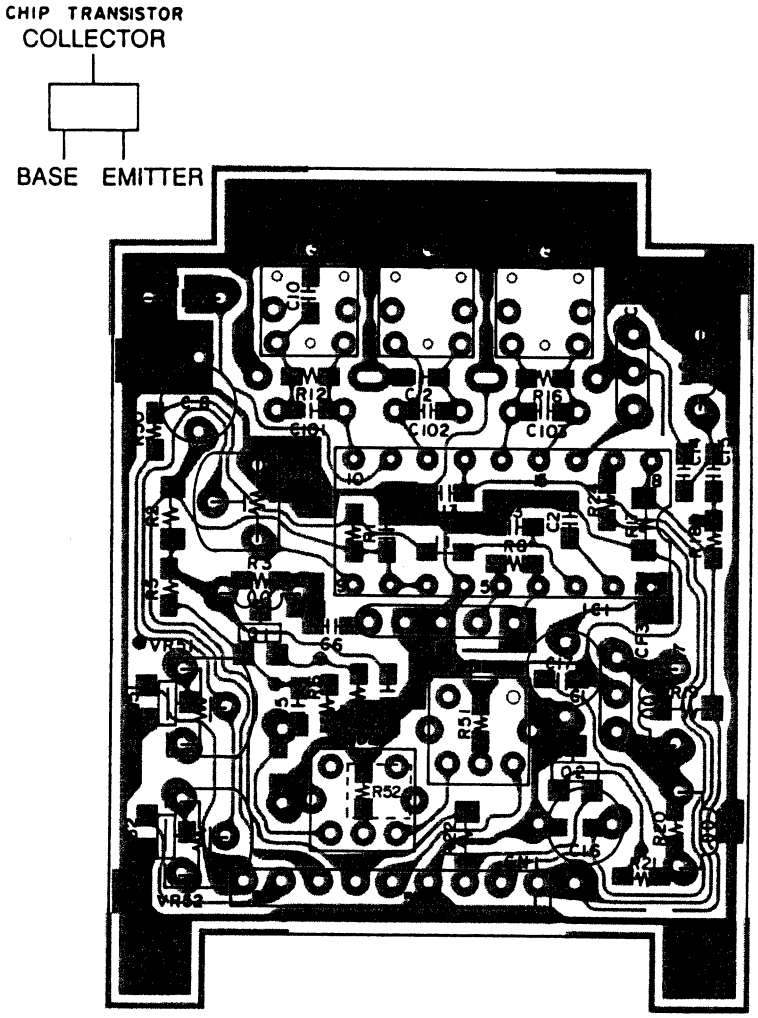
*	EA	ES
CF1	SAF36.9 MZ70Z	SAF38.9 MW70Z
CF2	SFE 5.5MBF	SFE 6.0MBF
CF3	TPS 5.5MW	TPS 6.0MB2
L 3	6F16437 A1	6F16437 A2
L 4	6F16436 A2	6F16435 A1
L 5	6F16441 A1	6F16446 A1
L 6	18μ	15μ
L 7	18μ	15μ
R 4	150	100
R 7	22	←
R16	10K	10K
C17	CH12P	CH15P

B (POWER SUPPLY) LINE

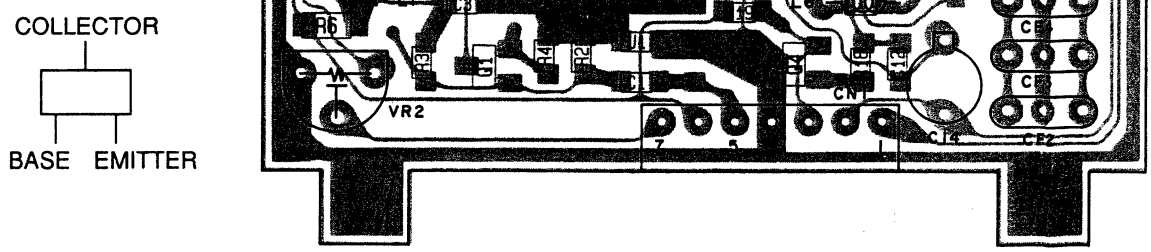
INDICATED VOLTAGES WERE MEASURED
DURING E-E (STOP) MODE.
(WHEN A STATION IS TUNED)

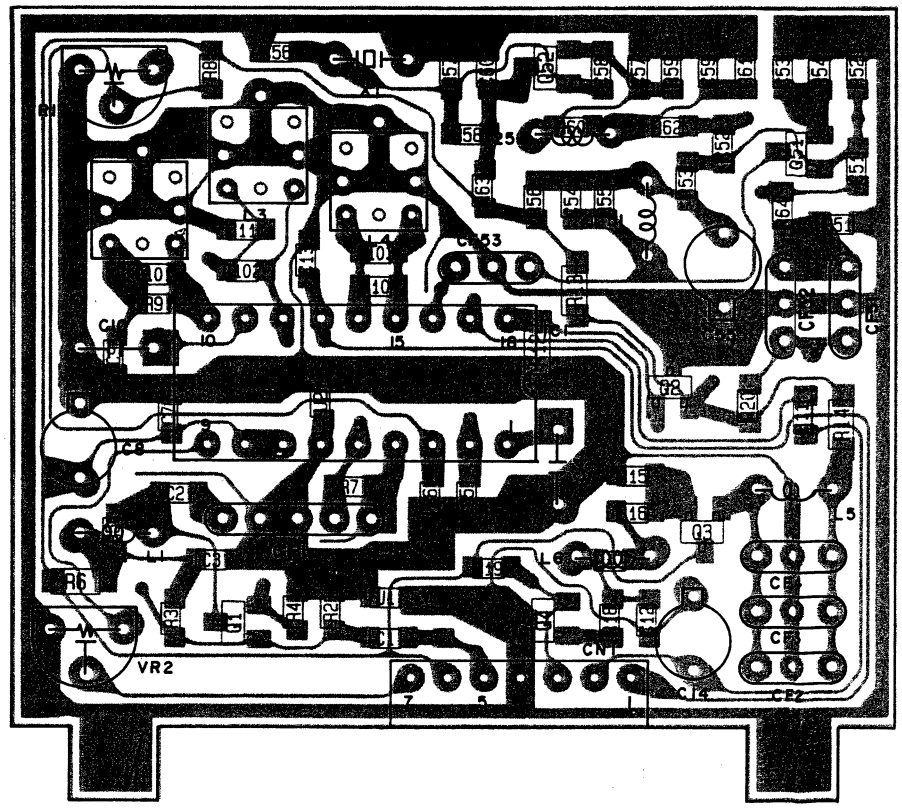
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF
ALL INDUCTORS IN μH (K)

VS-G204EA/EOH/EM/ES
VS-G205EA/EOH/G206EA
VS-G211EOH/G215EK/EOH
VIF UNIT
SCHEMATIC DIAGRAM
No.12-9 V11820 9M
A3

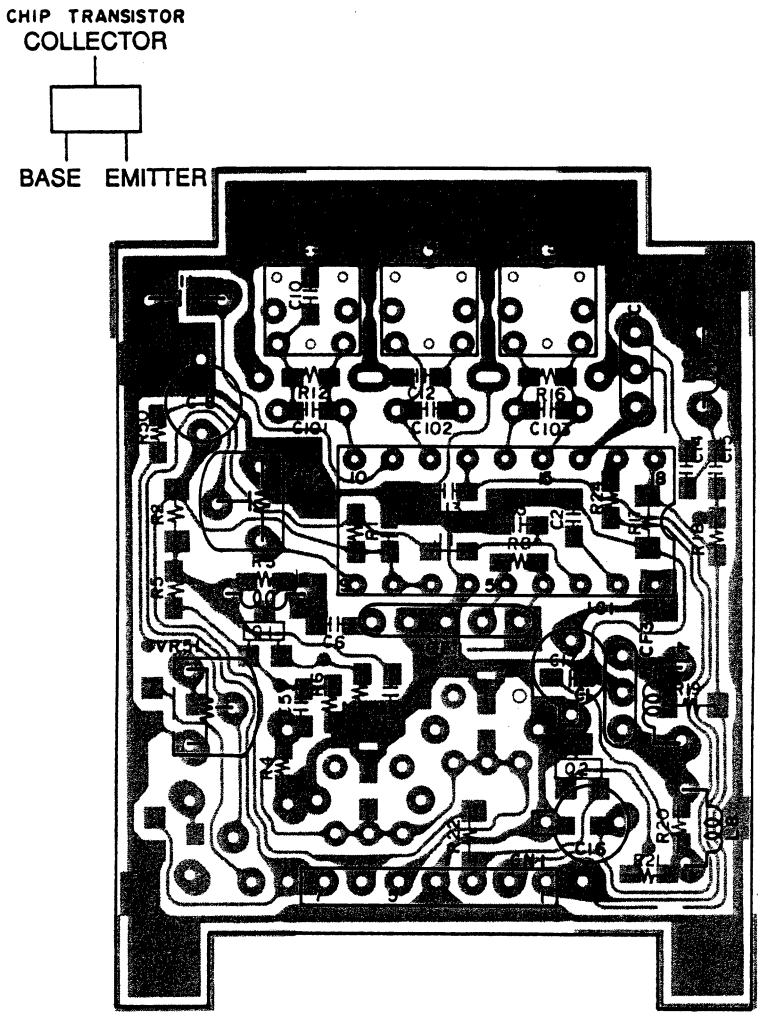


VIF UNIT 6C02413C1
(EO,EOG ONLY)

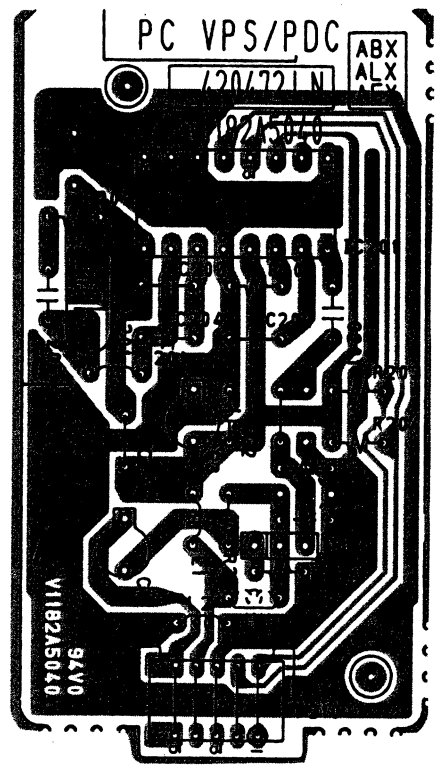




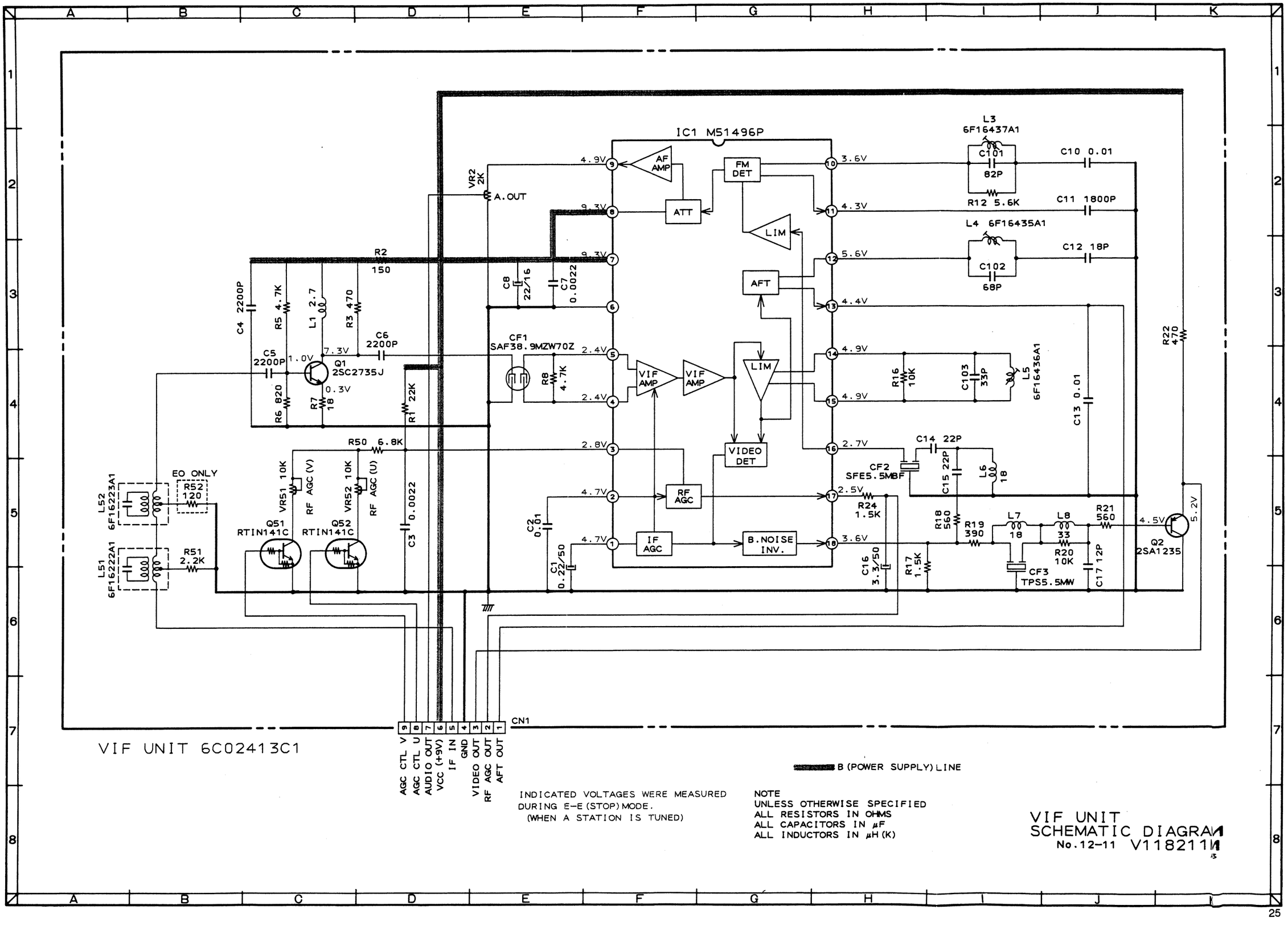
VIF UNIT 6B01294A1
(EDG, G205EM ONLY)



VIF UNIT 6C02415C1
(EA,EK,G204EM,EOH,ES ONLY)



VPS/PDC PCB
VI182A5040
(EK,EOG,G215EOH(Y1) ONLY)



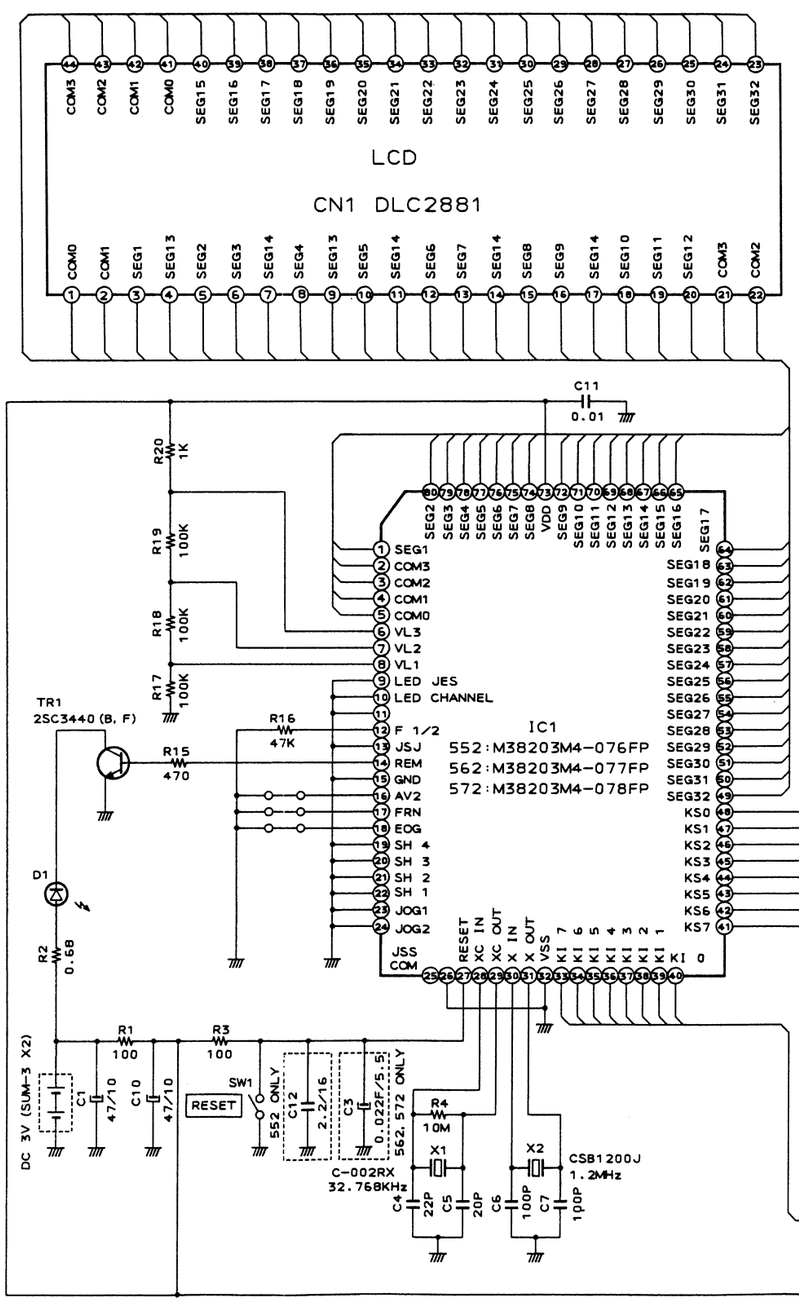
VIF UNIT 6C02413C1

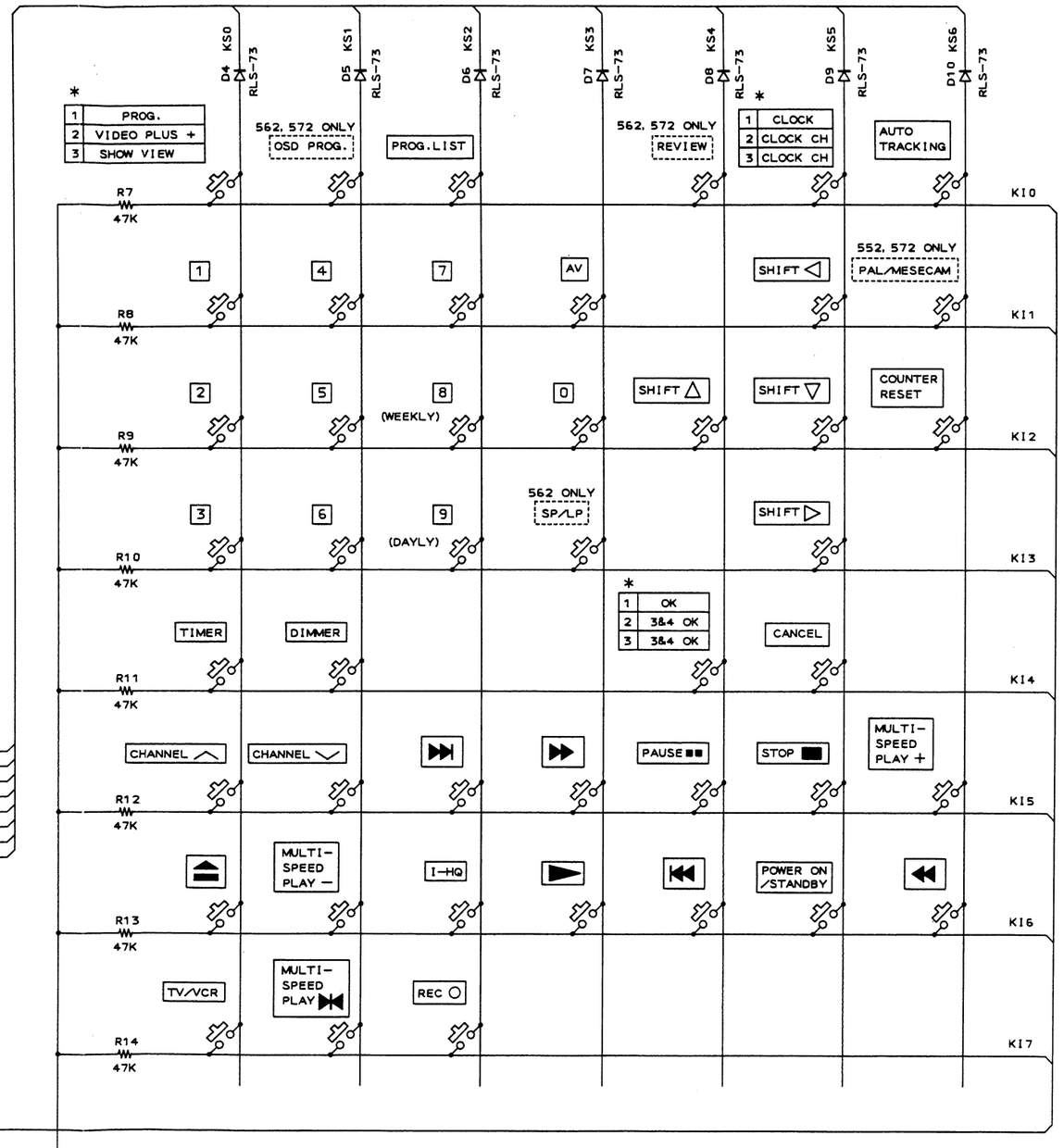
INDICATED VOLTAGES WERE MEASURED DURING E-E (STOP) MODE.
(WHEN A STATION IS TUNED)

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF
ALL INDUCTORS IN μH (K)

VIF UNIT SCHEMATIC DIAGRAM

No.12-11 V1182111


LCD
CN1 DLC2881
COM3 COM2 COM1 COM0 SEG15 SEG16 SEG17 SEG18 SEG19 SEG20 SEG21 SEG22 SEG23 SEG24 SEG25 SEG26 SEG27 SEG28 SEG29 SEG30 SEG31 SEG32
COM0 COM1 SEG1 SEG13 SEG2 SEG3 SEG14 SEG4 SEG13 SEG5 SEG14 SEG6 SEG7 SEG14 SEG8 SEG9 SEG14 SEG10 SEG11 SEG12 COM3 COM2
C11 0.01
R20 1K
R19 100K
R18 100K
R17 100K
R16 47K
R15 470
TR1 2SC3440 (B, F)
D1
R2 0.68
R1 100
R3 100
DC 3V (SUM-3 X2)
C1
C10 47/10
C9 47/10
SW1
RESET
552 ONLY
C12 2.2/16
C3 0.022F/5.5
562, 572 ONLY
R4 10M
X1
C-002RX 32.768KHz
C4 22P
C5 20P
X2
CSB1200J 1.2MHz
C6 100P
C7 100P
IC1
552:M38203M4-076FP
562:M38203M4-077FP
572:M38203M4-078FP
SEG2 SEG3 SEG4 SEG5 SEG6 SEG7 SEG8 VDD SEG9 SEG10 SEG11 SEG12 SEG13 SEG14 SEG15 SEG16 SEG17
SEG1 COM3 COM2 COM1 COM0 VL3 VL2 VL1 LED JES LED CHANNEL F 1/2 JSJ REM GND AV2 FRN EOG SH 4 SH 3 SH 2 SH 1 JOG1 JOG2 JSS COM
SEG18 SEG19 SEG20 SEG21 SEG22 SEG23 SEG24 SEG25 SEG26 SEG27 SEG28 SEG29 SEG30 SEG31 SEG32
KS0 KS1 KS2 KS3 KS4 KS5 KS6 KS7
RESET XC IN XC OUT X IN X OUT VSS KI 7 KI 6 KI 5 KI 4 KI 3 KI 2 KI 1 KI 0



※ THIS SCHEMATIC DIAGRAM IS ONLY FOR REFERENCE. TO AVOID REPLACING INDIVIDUAL PARTS, REPLACE THE ENTIRE UNIT ONLY.

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV

*BUTTON NAME DIFFERENCES

	BUTTON NAME
1	FOR RC-W552
2	FOR RC-W562
3	FOR RC-W572

RC-W552, W562, W572 REMOTE CONTROL UNIT SCHEMATIC DIAGRAM

No.12-12 V118212M A2